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A WINTER ENVIRONMENTAL DATA SURVEY OF THE DRAINAGE BASIN OF THE--ETC(U)  
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# Special Report 80-19

April 1980

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## A WINTER ENVIRONMENTAL DATA SURVEY OF THE DRAINAGE BASIN OF THE UPPER SUSITNA RIVER, ALASKA

Michael A. Bilello

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20. Abstract (cont'd)

physical properties of the snow cover and the rate at which soil thaws in the spring are also provided for selected stations near the area under study.

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## PREFACE

This report was prepared by Michael A. Bilello, Meteorologist, Snow and Ice Branch, Research Division, United States Army Cold Regions Research and Engineering Laboratory (USACRREL).

This work was conducted for the U.S. Army Corps of Engineers, Directorate of Civil Works. It was funded under CWIS-3111, OCE Order #RD-75-7, Environmental Criteria for Resources Management of Cold Regions.

The report was suggested by Dr. Jerry Brown, Research Soil Scientist, USACRREL. Mrs. Donna Bostwick, Snow and Ice Branch, USACRREL typed the tables and assisted considerably in the reduction of the data. The report was reviewed by Dr. Brown and Dr. Richard Berg, Research Civil Engineer, USACRREL. A number of their suggestions were incorporated into the report.

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A Winter Environmental Data Survey  
of the Drainage Basin of the Upper Susitna River, Alaska

by Michael A. Bilello

The objectives of this survey were to compile information on the winter climate in and around the Upper Susitna River Basin of Alaska and to retrieve all available snow and ice cover measurements made in the area. This particular portion of the Susitna Basin is located in the interior of southeast Alaska and includes parts of the glaciers in the Alaska Range. The Susitna River in this part of the watershed flows generally west to the vicinity of the village of Gold Creek where it begins to flow southward until it empties into the northern end of Cook Inlet approximately 25 miles west of Anchorage. The locations of the snow, ice, and climate stations used in this survey are shown in Figures 1 and 2.

The main purposes for collecting these environmental data were: 1) to compile in one source all available information on winter surface conditions in and around the area of interest, 2) to retrieve and tabulate all recent climatic data from stations in and around the basin, 3) to obtain similar periods of weather records for all stations to make comparisons possible, 4) to accumulate information on snowfall amounts and snow cover depths, and all available measurements on snow-cover densities and water equivalents, 5) to retrieve all data on observed ice formation, growth, and decay on the rivers and lakes in and around the basin and 6) to collect, review, and present the data in a form suitable for quick use and easy reference.

The results (Tables I-VI) constitute all the winter environmental information collected through established observational networks.

Table I (Monthly climatic summaries)

This compilation of monthly climatic summaries for 16 locations in and around the basin was taken from the National Weather Service Alaska climatological data series (U.S. Dept. of Commerce 1965-1975). Data in the table are: average monthly air temperature, average monthly maximum and minimum air temperatures, total precipitation, monthly total snowfall, and maximum depth of snow on the ground from September 1964 to May 1974. Nine of the stations (Big Delta, McKinley Park, Paxson Lake, Summit, Talkeetna, Trim's Camp, Palmer 1N, Snowshoe Lake, and Tonsina Lodge) provided information for all 10 years. Three stations (Gakona 1N, Sourdough, and Tyone) provided brief records of 1 to 3 years, and the remaining four stations have 4 to 9 years of record.

Table II (Ice thickness observations across Alaskan rivers)

Personnel of the Water Resources Division, Alaska, Geological Survey, U.S. Department of the Interior, have been making detailed

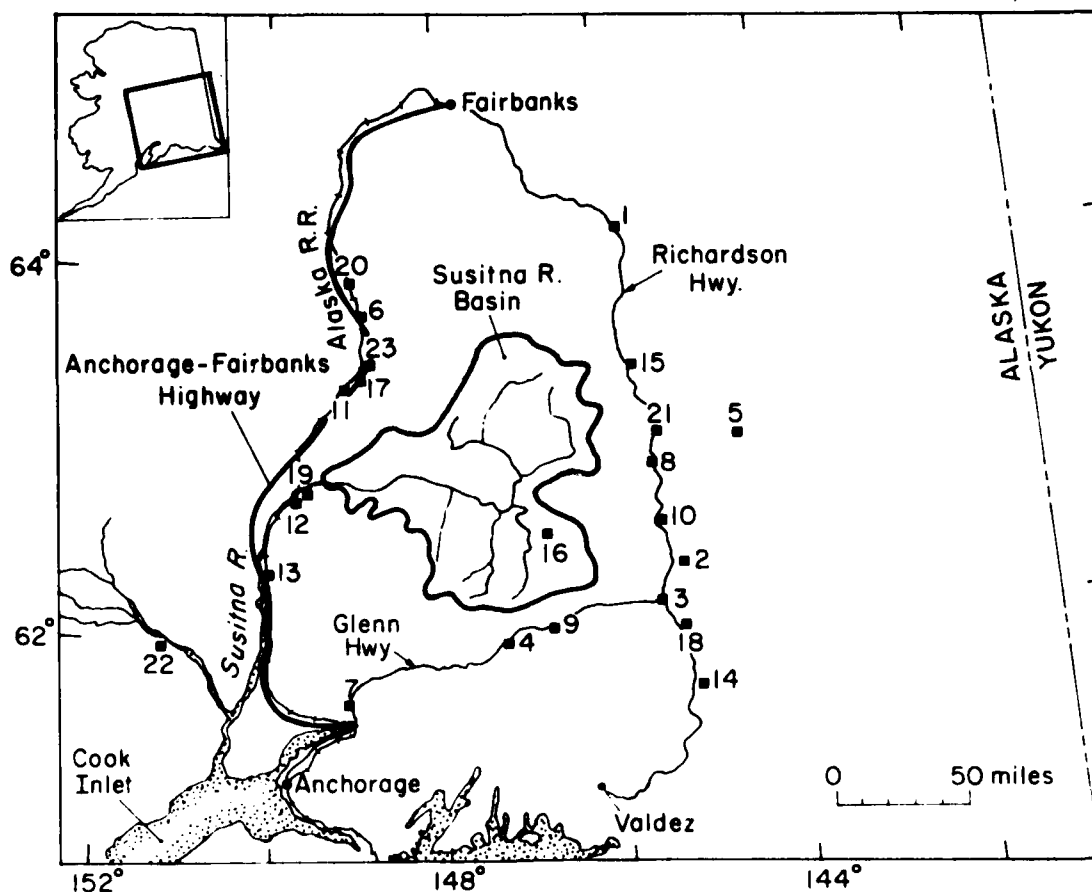


Figure 1  
Upper Susitna basin and surrounding area with station locations

#### Station Index

##### Climate stations - National Weather Service, NOAA

1. Big Delta	7. Palmer 1N	13. Talkeetna
2. Gakona 1N	8. Paxson Lake	14. Tonsina Lodge
3. Glennallen	9. Snowshoe Lake	15. Trim's Camp
4. Gunsight	10. Sourdough	16. Tyone
5. Mankomen Lake	11. Summit	
6. McKinley Park	12. Susitna Meadows	

##### River ice thickness sites - Water Research Division, USGS

17. Cantwell	7. Palmer
18. Copper Center	21. Paxson
2. Gakona	22. Skwentá
3. Glennallen	13. Talkeetna
19. Gold Creek	23. Windy
20. Lignite	



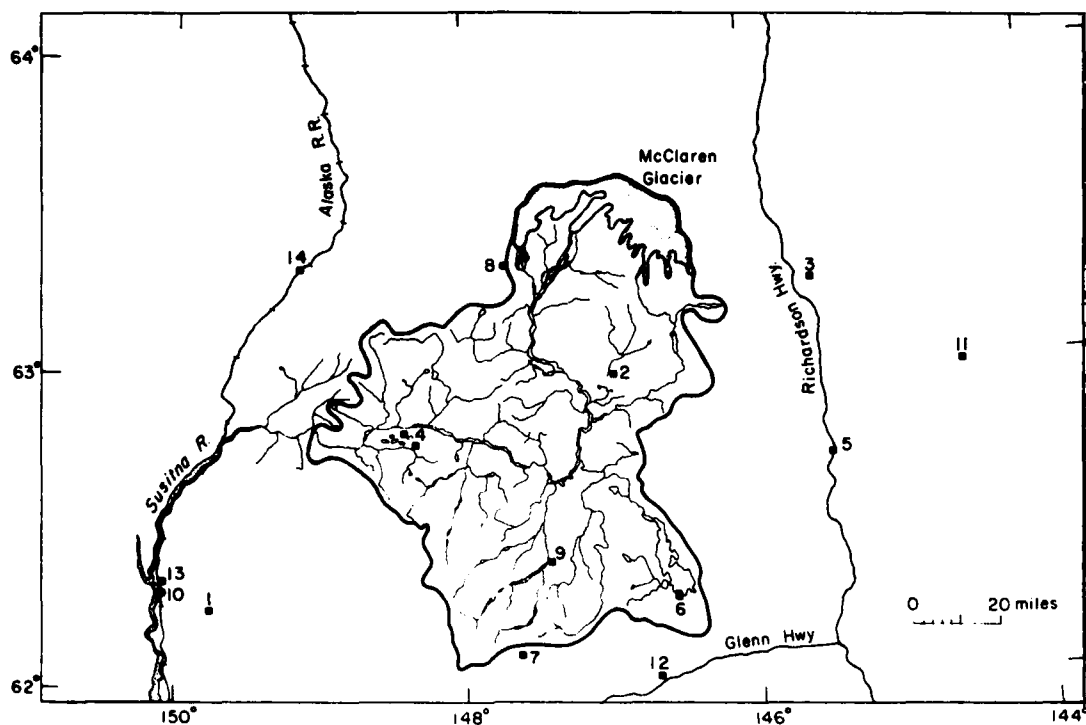


Figure 2  
Upper Susitna basin showing station locations

Snow course locations - Soil Conservation Service, Alaska

- |                        |                    |                 |
|------------------------|--------------------|-----------------|
| 1. Bald Mountain Lake  | 5. Haggard Creek   | 8. Monahan Flat |
| 2. Clearwater Lake     | 6. Lake Louise     | 9. Oshetna Lake |
| 3. Fielding Lake       | 7. Little Nelchina | 10. Talkeetna   |
| 4. Fog Lakes #1 and #2 |                    |                 |

Lake and river ice thickness locations - CRREL/NOAA Network

- |                   |                     |
|-------------------|---------------------|
| 10. Talkeetna     | 12. Snowshoe Lake   |
| 11. Mankomen Lake | 13. Trapper's Creek |

Snow cover measurement sites - CRREL/NOAA Network

- |                   |
|-------------------|
| 12. Snowshoe Lake |
| 14. Summit        |

Soil-thaw measurement site - CRREL/NOAA Network

- |                   |
|-------------------|
| 12. Snowshoe Lake |
|-------------------|

measurements of ice thickness across rivers in Alaska since 1949. These data were furnished to CRREL for publication in its North American ice thickness observation series (Bilello and Bates 1966-1975). The observations made at 11 locations in the vicinity of the basin were extracted from those reports and are shown in Table II. The table gives the observation date, the width of the river at the measurement site, and the greatest and least ice thickness observed across the river. Additional information, such as open water, slush conditions, etc., is included when given by the observer.

Table III (Snow course measurements of depth, water equivalent, and computed densities)

The Soil Conservation Service of the U.S. Department of Agriculture, in cooperation with several other agencies, has made snow survey measurements throughout Alaska for a number of winters. These observations were made approximately once each month, generally starting in January or February. A report summarizing all the snow surveys made in the state since the beginning of the activity was published by the U.S. Dept. of Agriculture (1970). The results for 10 sites located in and near the Upper Susitna River Basin are given in Table III. Since the observations continued after the above report was published in 1970, Mr. Ted Freeman and Mr. Art Crook from the SCS office in Anchorage provided the author with an additional 4 years of data. They also provided information as to which measurements throughout each station's history were made by aerial observation. Table III shows the date of each observation, the snow-cover depth, the measured (or in the cases of aerial observation, estimated) water equivalent, and the resultant snow-cover density.

Table IV (Ice thickness observations on Alaskan lakes and rivers)

The information given in this and the next two tables was acquired by observers assisting in a network of snow, ice, and thawed soil observation stations established and maintained cooperatively by CRREL and the National Weather Service (Alaska), NOAA. Ice thickness measurements made approximately weekly at four of these network stations are given in Table IV. Data from five to nine winters are presented for two lake and two river locations. Additional information such as the dates of ice formation and decay is provided when available. These records have been previously published (Bilello and Bates 1966-1975).

Table V (Tabulations of observed snow cover depths, weighted densities, and water equivalent)

Table V lists the snow-cover depths, weighted densities, and resultant water equivalent values from two stations in the CRREL/NOAA network. The data were extracted from the original snow observation cards and include 11 years of record for Snowshoe Lake, a very reliable station, (winters of 1963-64 through 1973-74) and 1 year for Summit, Alaska (winter of 1973-74). Similar snow-cover measurements made at numerous other stations in the Alaska and Canadian network resulted in a study on the regional variations in snow-cover density in North America (Bilello 1969). The information given in Table V is similar to that given in Table III, except that in Table V the observations start at the beginning of each winter and are made weekly instead of monthly.

Table VI (Observations on the depth of thawed soil)

Information on the rate at which the soil thaws from the surface downward is rare in the area of interest. Of the few stations making such observations in the CRREL/NOAA network, only Snowshoe Lake is located near the basin. Seven years of data on the measured depth of thaw in two soil types were acquired at Snowshoe Lake. The results are shown in Table VI. Measurements were started as soon as the snow cover melted and the ground began to thaw. The loam and gravel site consistently started to thaw sooner than the tundra site, and thaw at the loam and gravel site reached the maximum observed depth of 30 inches about a month earlier than at the tundra site. Other environmental aspects such as exposure, orientation, and vegetation types should also be considered in an evaluation of soil thawing. Berg and Bilello (1967) studied the onset of seasonal thaw in Alaska, recording the average dates of thawing air temperatures and last snow on the ground, and approximate dates of 6 and 12 inches of ground thaw.

This comprehensive collection of snow, ice, and climate information for the Upper Susitna River Basin will help satisfy the basic needs for such data in the preliminary planning and studies for the proposed Devil Canyon Project. Activities requiring such data include construction, transmission lines, roads, and highways, environmental impact statements, etc. As noted in the U.S. Department of the Interior (1974) Status Report, new inflow design flood studies and additional work on environmental aspects are seen as priority matters for subsequent investigations. The detailed information provided in this report could be used as required basic data when such studies are conducted.

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Table 1. Monthly climatic summaries for stations in the vicinity of the Upper Susitna River Drainage Basin, Alaska.

1964-65

[illegible]

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska

	Trims Camp												Gekona-LN					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	39.8	26.4	10.0	-11.4	-2.3	--	26.1	24.2	33.7	--	--	--	--	--	--	--	--	--
Average Maximum Temperature (°F)	47.5	32.6	17.4	-2.3	3.8	--	32.4	32.3	42.5	--	--	--	--	--	--	--	--	--
Average Minimum Temperature (°F)	32.1	20.2	2.5	-20.5	-13.4	--	19.8	16.0	24.9	--	--	--	--	--	--	--	--	--
Total Precipitation (water equi., in)	2.53	5.67	5.28	8.73	2.29	--	2.45	4.70	2.30	--	--	--	--	--	--	--	--	--
Snowfall Amount (in)	3.5	52.1	42.0	--	25.0	41	42	50	22.5	--	--	--	--	--	--	--	--	--
Max. Depth of Snow on the Ground (in)	--	19	25	60	47	41	42	50	24	--	--	--	--	--	--	--	--	--

	Sourdough												Tyone					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Average Maximum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Average Minimum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	Bl. Delta												Glennallen					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	48.0	14.9	6.2	-7.5	-11.4	1.1	2.1	20.1	40.0	--	--	--	--	-19.0	3.6	--	30.7	40.1
Average Maximum Temperature (°F)	56.6	24.1	14.7	0.2	-11.4	10.2	13.4	20.1	49.2	--	--	--	--	-6.4	18.2	--	43.0	52.7
Average Minimum Temperature (°F)	39.4	5.7	-2.3	-15.7	-17.3	-2.3	-9.2	16.1	34.8	--	--	--	--	-31.5	-11.0	-6.4	17.4	27.5
Total Precipitation (water equi., in)	1.23	0.34	0.50	1.01	0.01	0.42	0.20	0.25	1.02	--	--	--	--	0.25	0.28	0.11	0.06	0.68
Snowfall Amount (in)	0.9	16.9	8.4	20.9	T	6.9	3.6	3.1	0.5	--	--	--	--	5.5	5.3	2.4	T	--
Max. Depth of Snow on the Ground (in)	T	12	13	19	19	12	12	8	2	--	--	--	--	22	25	--	--	--

	Gungahat												Mankomen Lake					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	-2.5	-10.4	5.8	23.2	34.9
Average Maximum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	2.5	15.3	17.0	37.3	44.2
Average Minimum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	-13.6	-22.0	-10.1	9.8	25.8
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	--	--	--	--	--	4.99	3.25	0.76	0.81	1.15
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	4.3	35.5	11.5	13.0	18.0
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	2	34	33	62	60

	McKinley Park												Palmer-LN					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	45.7	15.8	12.1	0.6	-3.9	7.0	3.7	26.5	37.8	--	--	--	--	--	--	18.4	37.9	45.3
Average Maximum Temperature (°F)	55.1	26.5	21.1	10.1	5.2	17.3	15.3	40.1	48.1	--	--	--	--	--	--	27.5	47.8	54.7
Average Minimum Temperature (°F)	36.3	5.0	3.0	-3.9	-12.9	-3.4	-7.9	12.3	27.7	--	--	--	--	--	--	9.2	28.0	35.8
Total Precipitation (water equi., in)	2.86	1.32	0.63	2.65	0.09	2.21	0.42	T	0.76	--	--	--	--	--	--	0.40	1.16	1.34
Snowfall Amount (in)	T	24.3	11.5	35.9	1.5	40.0	6.5	T	T	--	--	--	--	--	--	5.5	6.0	0
Max. Depth of Snow on the Ground (in)	T	13	16	40	40	44	39	34	21	--	--	--	--	--	--	8	1	0

	Paxson Lake												Snowshoe Lake					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	--	--	--	-7.0	-15.5	--	4.4	23.6	37.4	--	--	--	--	-13.8	-18.1	1.4	26.0	36.8
Average Maximum Temperature (°F)	--	--	--	5.0	-3.0	--	18.1	36.3	44.6	--	--	--	--	-2.9	-8.0	13.0	40.2	47.3
Average Minimum Temperature (°F)	--	--	--	-18.9	-27.9	--	-9.3	10.9	29.7	--	--	--	--	-24.7	-28.2	-16.0	11.8	26.2
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	1.28	--	--	--	--	1.00	1.02	0.22	0.35	1.51
Snowfall Amount (in)	--	--	--	--	--	--	--	--	2.0	--	--	--	--	2.5	14.8	4.1	4.5	4.5
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	31	--	20	--	--	--	--	1	13	15	20	6

Table I. (cont'd.)

	Summit						Sugitna Meadows					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	43.2	16.7	9.5	0.9	-3.2	4.4	35.0	22.0	3.0	22.0	35.0	35.0
Average Maximum Temperature (°F)	49.7	24.2	16.3	7.5	3.2	11.0	41.8	32.3	11.4	32.3	41.8	41.8
Average Minimum Temperature (°F)	36.6	9.2	2.6	-5.8	-9.6	-2.2	28.1	11.6	-5.5	11.6	28.1	28.1
Total Precipitation (water equi., in)	6.13	0.53	0.42	1.12	0.17	2.32	0.44	0.43	0.43	0.43	0.44	0.44
Snowfall Amount (in)	1.6	5.5	4.3	11.4	1.7	23.0	3.8	13.5	4.3	13.5	3.8	3.8
Max. Depth of Snow on the Ground (in)	1	6	8	21	22	49	20	54	53	54	20	20

	Talkedna						Tonsina Lodge					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	48.9	25.2	13.2	3.8	8.4	9.7	43.0	33.9	14.3	33.9	43.0	43.0
Average Maximum Temperature (°F)	55.7	35.4	24.6	13.4	18.2	23.0	53.3	45.1	27.0	45.1	53.3	53.3
Average Minimum Temperature (°F)	42.1	15.0	1.3	-5.8	-1.5	-3.6	32.6	22.6	1.5	22.6	32.6	32.6
Total Precipitation (water equi., in)	8.20	1.97	1.02	1.13	0.53	0.86	2.66	4.45	0.61	4.45	2.66	2.66
Snowfall Amount (in)	T	10.2	13.5	5.5	31	40	T	34	5.9	41	T	T
Max. Depth of Snow on the Ground (in)	0	10	12	28	31	40	0	34	41	34	0	0

	Tring Camp						Gakona-IN					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	43.6	16.1	9.3	--	--	6.5	33.7	21.7	33.7	33.7	33.7	33.7
Average Maximum Temperature (°F)	53.6	26.0	19.9	10.0	2.2	16.0	43.9	33.7	43.9	43.9	43.9	43.9
Average Minimum Temperature (°F)	33.6	6.2	-1.3	--	--	-3.1	23.5	9.7	23.5	23.5	23.5	23.5
Total Precipitation (water equi., in)	6.67	6.55	1.73	8.93	1.96	3.01	6.03	3.02	6.03	3.02	6.03	6.03
Snowfall Amount (in)	10.0	87.0	18.5	100.5	27.0	48.8	16.0	31.0	16.0	31.0	16.0	16.0
Max. Depth of Snow on the Ground (in)	--	53	44	102	66	100	46	59	46	59	46	46

	Sourdough						Tyone					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--
Average Maximum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--
Average Minimum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	--	--	--	--
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	--	--	--
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	--	--	--	--	--	--

	Big Delta						Glennallen					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	46.4	21.3	3.1	-7.9	-7.3	0.2	43.0	31.3	12.5	31.3	43.0	43.0
Average Maximum Temperature (°F)	55.4	27.2	11.1	0.2	1.1	10.0	52.8	41.0	24.2	41.0	52.8	52.8
Average Minimum Temperature (°F)	37.4	14.9	-5.0	-16.0	-15.7	-9.7	33.1	21.6	0.8	21.6	33.1	33.1
Total Precipitation (water equi., in)	0.78	0.83	0.94	0.12	0.41	0.60	1.12	0.21	1.12	0.21	1.12	1.12
Snowfall Amount (in)	0	15.9	15.6	5.5	17.2	15.9	24.9	3.2	24.9	3.2	24.9	24.9
Max. Depth of Snow on the Ground (in)	0	9	15	19	23	27	43	40	43	40	43	43

	Gunsight						Mankomen Lake					
	Sept	Oct	Nov	Dec	Jan	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	39.6	20.1	0.4	-9.1	-11.9	-4.3	36.8	21.5	4.9	21.5	36.8	36.8
Average Maximum Temperature (°F)	51.2	30.2	13.1	2.7	-8	9.6	48.8	36.4	22.6	36.4	48.8	48.8
Average Minimum Temperature (°F)	28	9.9	-12.3	-20.9	-24.5	-18.1	24.8	6.6	-12.8	6.6	24.8	24.8
Total Precipitation (water equi., in)	1.72	0.84	1.50	0.27	0.34	0.91	0.27	0.56	0.56	0.27	0.56	0.56
Snowfall Amount (in)	--	--	--	3.9	3.7	6.4	2.5	2.5	2.5	2.5	2.5	2.5
Max. Depth of Snow on the Ground (in)	--	--	--	2.	2.	3	2	2	2	2	2	2

1966-67

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska.

[illegible]



Table I. (cont'd.)

1967-68

	Big Delta					Glennville					Mankamen Lake					Palmer-LN					Snowshoe Lake						
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Ave. Temperature (°F)	45.7	24.6	14.2	1.0	-8.0	6.7	21.6	31.5	46.6	42.1	22.9	16.2	-4.0	-8.7	9.6	15.0	26.3	43.5	40.7	23.3	11.5	-2.9	-9.7	6.6	12.7	21.8	40.6
Average Maximum Temperature (°F)	54.0	30.4	22.7	7.7	1.1	14.4	32.5	40.8	56.5	55.2	37.0	25.6	6.8	5.4	23.8	32.1	40.9	55.7	51.6	33.5	20.2	5.3	-0.9	17.3	28.1	36.5	52.5
Average Minimum Temperature (°F)	37.3	18.8	5.6	-5.7	-17.1	-1.0	10.7	22.2	36.6	28.9	8.7	6.8	-14.7	-22.7	-4.6	-2.2	11.6	31.3	40.4	26.5	20.4	8.3	3.9	17.5	22.4	25.9	38.8
Total Precipitation(water equiv.,in)	1.49	0.34	0.46	0.32	0.91	0.14	0.01	0.03	1.44	1.42	0.29	0.68	1.96	0.47	1.71	0.15	0.11	0.76	3.90	0.19	2.49	2.92	0.61	0.60	0.15	0.58	2.10
Snowfall Amount(in)	T	6.4	9.5	5.6	14.3	2.5	1	1.5	T	0	4.2	--	6.4	8.8	11.4	2.7	3.4	0	0	4.2	4.7	16.7	4.4	17.0	11.7	1.3	0
Max. Depth of Snow on the Ground (in)	0	4	4	5	19	19	1	1	T	0	4	4	5	10	15	5	4	0	0	4	6	34	35	54	48	41	31

	Gunglight					McKinley Park					Paxson Lake					Summit											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb			
Ave. Temperature (°F)	39.1	20.4	8.5	-5.7	-9.9	15.5	26.0	32.3	48.1	41.6	25.7	13.3	5.2	-5.2	8.4	14.3	21.4	37.8	51.6	34.7	22.8	16.1	6.4	18.1	29.2	37.7	48.8
Average Maximum Temperature (°F)	50.6	32.8	20.4	4.7	3.1	15.2	26.0	32.3	48.1	41.6	25.7	13.3	5.2	-5.2	8.4	14.3	21.4	37.8	51.6	34.7	22.8	16.1	6.4	18.1	29.2	37.7	48.8
Average Minimum Temperature (°F)	27.6	8.0	-3.4	-15.9	-22.8	-14.3	-10.0	1.1	26.0	31.6	16.6	3.3	-5.8	-16.8	-1.4	-7	5.0	26.8	40.4	26.5	20.4	8.3	3.9	17.5	22.4	25.9	38.8
Total Precipitation(water equiv.,in)	2.27	0.25	0.4	0.96	0.28	0.77	0.43	0.09	1.83	3.08	0.67	2.83	1.52	1.42	2.68	T	0.20	3.30	3.90	0.19	2.49	2.92	0.61	0.60	0.15	0.58	2.10
Snowfall Amount (in)	0	--	7.2	14.0	5.0	12.0	7.0	1.0	0	T	10.7	33.6	12.3	--	30.0	--	3.0	48	9.0	4.0	8	9	3	8	2	4	0
Max. Depth of Snow on the Ground (in)	0	5	11	25	20	24	24	23	12	13	6	32	12.3	35	54	48	41	31	0	4	8	9	3	8	2	4	0

	Paxson Lake					Summit									
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	40.7	21.6	12.8	-1.4	-7.6	8.4	13.6	21.4	36.9	40.9	23.3	11.5	-2.9	-9.7	6.6
Average Maximum Temperature (°F)	49.1	30.0	24.3	8.5	5.5	14.8	23.2	32.5	44.7	51.6	33.5	20.2	5.3	-0.9	17.3
Average Minimum Temperature (°F)	32.2	13.2	1.3	-11.2	-20.7	-8.1	11.4	18.5	29.1	30.2	13.1	2.8	-11.0	-18.5	-4.2
Total Precipitation(water equiv.,in)	3.11	--	2.15	1.26	--	--	--	0.72	1.02	1.87	0.14	0.41	1.44	0.28	1.67
Snowfall Amount (in)	4.0	--	21.5	12.6	19.0	--	--	11.7	8.8	0	2.4	4.7	16.7	4.4	17.0
Max. Depth of Snow on the Ground (in)	4	--	--	--	--	--	--	49	48	0	2	6	18	18	29

	Susitna Meadows				
	Sept	Oct	Nov	Dec	Jan
Ave. Temperature (°F)	40.8	24.4	14.8	2.3	-0.7
Average Maximum Temperature (°F)	48.8	33.1	20.9	8.2	6.8
Average Minimum Temperature (°F)	32.8	15.7	4.6	-3.7	-8.1
Total Precipitation(water equiv.,in)	1.05	0.12	4.07	2.31	0.89
Snowfall Amount (in)	0.1	1.3	75.1	37.8	14.3
Max. Depth of Snow on the Ground (in)	T	12	50	70	79

	Tonsina Lodge				
	Sept	Oct	Nov	Dec	Jan
Ave. Temperature (°F)	47.4	31.6	21.1	8.1	6.4
Average Maximum Temperature (°F)	56.4	43.3	28.2	17.7	16.0
Average Minimum Temperature (°F)	38.3	19.9	13.9	-1.5	-3.3
Total Precipitation(water equiv.,in)	2.66	0.26	0.26	4.97	1.08
Snowfall Amount (in)	0	2.0	3.1	11.1	13.1
Max. Depth of Snow on the Ground (in)	0	2	31	37	22

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska.

	Tinas Camp												Gakona-III											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	39.9	24.4	16.5	4.3	-0.3	8.5	15.9	23.1	38.5															
Average Maximum Temperature (°F)	50.4	32.3	24.2	13.8	9.0	17.6	27.7	33.3	47.7															
Average Minimum Temperature (°F)	29.4	16.5	8.8	-5.2	-9.5	-0.6	4.1	12.8	29.2															
Total Precipitation (water eq., in)	5.31	1.99	9.64	6.61	3.02	8.98	0.14	1.25	3.09															
Snowfall Amount (in)	15.2	27.7	109.0	40.0	42.5	88.5	T	26.8	7.1															
Max. Depth of Snow on the Ground (in)	14.0	17	39	36	37	78	40	46	30															

	Sourdough												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)																								
Average Maximum Temperature (°F)																								
Average Minimum Temperature (°F)																								
Total Precipitation (water eq., in)																								
Snowfall Amount (in)																								
Max. Depth of Snow on the Ground (in)																								

1968-69

	El Delta												Glennallen											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	41.1	27.1	17.2	-10.8	-22.6	1.0	1.3	36.1	47.6															
Average Maximum Temperature (°F)	49.6	26.1	13.9	-2.0	-16.6	11.1	27.3	49.2	58.4															
Average Minimum Temperature (°F)	32.6	13.7	1.7	-19.2	-28.2	-9.1	5.2	26.4	36.7															
Total Precipitation (water eq., in)	0.32	0.91	0.44	0.10	0.36	T	0.27	0.13	1.10															
Snowfall Amount (in)	T	12.2	7.1	1.5	3.0	0.2	5.3	1.2	T															
Max. Depth of Snow on the Ground (in)	0	7	6	4	5	3	7	4	0															

	Dunsinilit												Manhatten Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	36.7	20.1	4.1	-14.0	-20.2	-5.5	9.5	26.5	39.9															
Average Maximum Temperature (°F)	47.0	29.1	15.1	-3.0	-7.6	3.8	25.6	38.6	51.5															
Average Minimum Temperature (°F)	26.4	11.4	-6.9	-25.0	-32.8	-19.7	-6.6	14.3	28.3															
Total Precipitation (water eq., in)	0.94	0.95	0.68	0.40	0.16	0.37	0.06	0.16	0.61															
Snowfall Amount (in)	T				3.0	6.5	T	3.0	0															
Max. Depth of Snow on the Ground (in)	T	7	13	20	21	21	18	12	1															

	McKinley Park												Palmer-III											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)		19.9	9.6	-7.9	-14.3	3.7	19.4	32.0	43.8															
Average Maximum Temperature (°F)		24.7	18.6	0.7	-6.7	14.8	33.0	44.6	57.7															
Average Minimum Temperature (°F)		9.8	0.6	-16.4	-21.8	-7.4	5.8	19.3	29.9															
Total Precipitation (water eq., in)	0.57	0.75	0.58	1.11	1.65	0.06	0.37	0.09	1.32															
Snowfall Amount (in)	8.0	8.4	9.0	15.5	24.8	1.0	8.7	3.0	5.0															
Max. Depth of Snow on the Ground (in)		7	11	21	30	29	27	23	T															

	Parson Lake												Snowshoe Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)		24.7	7.5	-14.1	-19.5	1.0	13.0	29.7	40.8															
Average Maximum Temperature (°F)		34.5	18.9	-4.3	-9.4	14.6	28.3	42.7	52.5															
Average Minimum Temperature (°F)		14.9	-4.0	-23.8	-29.5	-12.6	-2.3	16.6	29.1															
Total Precipitation (water eq., in)		1.20	0.62	0.54	0.05	0.10	0.36	0.03	1.52															
Snowfall Amount (in)		8.5	3.7	9.5	8.5	3.3	15.5	0.8	T															
Max. Depth of Snow on the Ground (in)		5	6	11	8	9	16	--	T															

1968-69

Table I. (cont'd.)

	Summit											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	37.8	21.9	11.6	-3.8	-7.7	7.1	15.2	29.6	40.2			
Average Maximum Temperature (°F)	46.0	28.3	17.7	3.5	-2.0	14.4	24.5	38.6	49.8			
Average Minimum Temperature (°F)	29.5	15.4	5.4	-11.0	-13.4	-0.2	5.8	20.5	31.7			
Total Precipitation (water equi., in)	1.13	0.52	0.18	0.28	0.56	0.49	0.71	0.22	0.41			
Snowfall Amount (in)	2.5	8.9	2.1	4.0	6.6	8.2	10.7	3.9	2.8			
Max. Depth of Snow on the Ground (in)	2	6	4	7	11	12	17	11	4			

	Talskietra											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	44.1	30.9	17.5	-1.2	-0.9	14.5	23.3	38.3	47.6			
Average Maximum Temperature (°F)	52.9	39.4	27.0	9.4	9.7	25.8	35.3	50.3	59.7			
Average Minimum Temperature (°F)	32.2	22.1	3.0	-11.2	-11.4	3.1	10.3	26.6	35.6			
Total Precipitation (water equi., in)	1.27	1.16	0.71	0.98	0.44	0.90	0.30	0.29	2.10			
Snowfall Amount (in)	13	1.7	10.2	13.7	8.2	26.3	28.1	3.0	0			
Max. Depth of Snow on the Ground (in)	17	2	6	15	15	29	27	15	0			

	Trine Camp											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	37.3	21.5	12.2	-5.8	-11.1	1.7	17.3	29.0	41.3			
Average Maximum Temperature (°F)	46.5	30.3	21.1	3.0	-2.1	14.9	24.1	40.2	48.9			
Average Minimum Temperature (°F)	23.1	12.3	3.2	-11.3	-20.0	-5.3	1.1	19.1	29.6			
Total Precipitation (water equi., in)	--	--	1.99	0.65	0.12	0.7	0.7	0.21	0.39			
Snowfall Amount (in)	13.5	--	27.0	9.0	3.7	7.1	14.1	8.0	2.5			
Max. Depth of Snow on the Ground (in)	12	11	17	14	11	16	1	14	2			

	Sardona											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	--	--	--	--	--	--	--	--	--			
Average Maximum Temperature (°F)	--	--	--	--	--	--	--	--	--			
Average Minimum Temperature (°F)	--	--	--	--	--	--	--	--	--			
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	--			
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--			
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	--	--	--			

	El Delta											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	46.7	35.1	6.3	15.6	-12.9	14.3	21.8	30.1	43.1			
Average Maximum Temperature (°F)	53.8	44.4	13.9	23.1	-4.3	23.7	32.9	39.7	49.4			
Average Minimum Temperature (°F)	34.6	25.3	-1.3	8.1	-21.5	4.9	15.7	21.4	26.9			
Total Precipitation (water equi., in)	0.45	T	0.29	T	0.14	0.37	0.25	0.21	0.74			
Snowfall Amount (in)	0	T	5.6	T	4.3	1.2	2.9	7.2	0			
Max. Depth of Snow on the Ground (in)	0	0	5	1	3	3	1	4	0			

	Glenallen											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	42.4	29.9	14.9	5.3	-13.5	16.3	22.5	30.7	42.4			
Average Maximum Temperature (°F)	58.7	45.8	16.2	15.7	0.1	28.3	36.8	42.3	58.7			
Average Minimum Temperature (°F)	26.0	16.9	-5.5	-13.3	-27.0	4.3	8.1	19.1	26.0			
Total Precipitation (water equi., in)	0.19	0.11	0.18	0.37	0.20	0.13	0.33	0.32	0.29			
Snowfall Amount (in)	0	0	2.2	2.9	4.9	3.5	2.5	4.0	0			
Max. Depth of Snow on the Ground (in)	0	0	6	6	7	8	0	2	0			

	Mankomen Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov
Ave. Temperature (°F)	39.1	25.7	1.1	5.3	-16.0	9.5	13.4	21.6	38.5			
Average Maximum Temperature (°F)	52.2	37.3	13.2	15.3	-3.0	21.9	30.0	35.1	42.0			
Average Minimum Temperature (°F)	26.0	14.0	-11.1	-4.8	-29.0	-3.0	-3.3	8.0	28.8			
Total Precipitation (water equi., in)	0.67	0.96	0.94	0.61	0.25	0.40	0.15	0.16	1.53			
Snowfall Amount (in)	0	10.0	--	--	--	--	1.8	4.1	2.0			
Max. Depth of Snow on the Ground (in)	0	10	14	25	28	24	19	19	7			

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska.

	McKinley Park												Palmer-LN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	--	33.1	5.6	18.0	-12.7	16.1	23.7	23.4	41.6	48.8	40.8	21.1	28.6	7.3	30.4	35.9	35.4	48.1						
Average Maximum Temperature (°F)	--	42.4	14.9	27.2	-3.9	29.3	36.4	36.3	56.6	60.2	49.7	27.9	34.8	14.7	37.2	43.7	44.6	60.3						
Average Minimum Temperature (°F)	--	23.7	-3.7	8.8	-21.4	2.8	11.0	10.4	26.5	37.3	31.9	14.2	22.4	0.2	23.5	28.0	26.2	31.9						
Total Precipitation (water equi., in)	0.09	0.82	0.35	0.09	0.22	0.41	0.12	0.71	2.52	0.67	1.30	0.57	2.15	0.42	0.55	0.27	1.55	0.30						
Snowfall Amount (in)	0.0	4.7	7.5	1.0	4.3	7.3	6.5	8.6	1.1	0	0	8.0	4.0	10.0	6.5	0	8.0	0						
Max. Depth of Snow on the Ground (in)	0	5	7	7	8	12	11	10	1	0	0	6	4	5	6	0	3	0						

	Paxson Lake												Snowshoe Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	42.5	32.1	4.9	10.9	-11.6	16.2	19.6	24.7	40.1	41.2	29.7	4.6	6.9	-12.4	14.5	20.8	25.6	40.8						
Average Maximum Temperature (°F)	56.4	44.1	14.9	20.2	-1.0	27.7	34.1	35.1	53.0	55.0	39.7	12.5	15.3	-2.6	24.3	33.6	36.9	52.6						
Average Minimum Temperature (°F)	28.6	20.1	-5.1	1.6	-22.2	4.6	5.1	14.2	27.2	27.4	19.6	-3.3	-1.5	-23.1	4.6	7.9	14.2	29.0						
Total Precipitation (water equi., in)	0.25	0.86	0.53	0.27	0.57	0.64	0.54	0.33	0.96	0.20	0.83	0.46	0.68	0.23	0.29	0.26	0.11	2.25						
Snowfall Amount (in)	0	4.5	9.1	7.8	13.0	5.2	10.1	11.9	1.3	0	5.2	7.3	8.5	4.0	4.4	3.7	2.3	4.8						
Max. Depth of Snow on the Ground (in)	0	4	9	10	19	20	18	21	6	0	3	8	14	16	19	19	16	T						

	Summit												Susitna Meadows											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	42.6	33.2	9.4	18.7	-5.7	13.2	22.0	21.3	33.7	--	--	--	--	--	--	--	--	44.2						
Average Maximum Temperature (°F)	54.6	41.3	14.2	26.2	1.2	20.0	30.5	29.4	47.8	--	--	--	--	--	--	--	--	59.5						
Average Minimum Temperature (°F)	30.6	25.0	4.5	11.1	-17.5	10.3	12.9	13.2	20.2	--	--	--	--	--	--	--	--	28.9						
Total Precipitation (water equi., in)	0.29	2.04	1.69	1.09	0.96	2.30	2.00	2.11	0.22	--	--	--	--	--	--	--	--	0.53						
Snowfall Amount (in)	0	17.7	19.2	10.4	11.2	27.0	26.0	28.7	5.7	--	--	--	--	--	--	--	--	T						
Max. Depth of Snow on the Ground (in)	0	10	19	24	32	45	39	46	37	--	--	--	--	--	--	--	30	21						

	Telkeetna												Tonsina Lodge											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	46.0	36.9	19.5	24.3	4.2	27.5	31.4	32.6	45.5	43.6	33.1	6.9	7.2	-14.3	18.3	25.2	32.2	43.6						
Average Maximum Temperature (°F)	60.9	47.0	26.9	31.9	14.3	34.4	40.0	41.0	58.2	53.7	44.5	16.8	16.9	-2.4	31.1	39.5	42.6	57.3						
Average Minimum Temperature (°F)	31.0	26.7	12.1	16.6	-6.4	20.6	22.7	24.1	32.7	28.1	21.7	-3.1	-2.3	-26.1	5.4	25.2	21.7	29.8						
Total Precipitation (water equi., in)	0.91	2.10	0.87	1.19	0.27	1.10	1.42	0.32	1.62	0.50	0.73	0.92	0.73	0.30	0.46	0.20	--	1.29						
Snowfall Amount (in)	0	3	5.9	12.4	9.3	10.7	2.1	11.3	7	0	0.2	15.6	7.4	2.2	6.2	1.9	--	0						
Max. Depth of Snow on the Ground (in)	0	T	2	9	12	18	13	6	T	0	T	9	11	16	20	15	12	0						

	Trims Camp												Cakons-LN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	41.7	33.9	8.0	22.0	-9.8	19.6	21.2	22.3	39.4	--	--	--	--	--	--	--	--	--						
Average Maximum Temperature (°F)	55.1	44.3	16.9	31.0	0.2	31.0	31.8	32.2	52.4	--	--	--	--	--	--	--	--	--						
Average Minimum Temperature (°F)	28.3	23.5	-1.0	12.9	-19.8	8.1	10.5	12.3	26.3	--	--	--	--	--	--	--	--	--						
Total Precipitation (water equi., in)	0.53	4.13	0.95	1.23	1.57	3.07	2.15	1.37	0.72	--	--	--	--	--	--	--	--	--						
Snowfall Amount (in)	0	24.5	21.0	24.3	42.0	44	41.8	43.3	3.5	--	--	--	--	--	--	--	--	--						
Max. Depth of Snow on the Ground (in)	0	9	7	13	35	44	35	54	33	--	--	--	--	--	--	--	--	--						

	Sourdough												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
Average Maximum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
Average Minimum Temperature (°F)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
Total Precipitation (water equi., in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
Max. Depth of Snow on the Ground (in)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						

1970-71

15

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska.

	Tring Camp												Calkins-LN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	34.2	16.3	12.0	-1.4	-10.0	-17.1	-21.1	21.4	34.4															
Average Maximum Temperature (°F)	43.5	24.4	22.7	10.1	-0.1	-17.4	-21.9	33.6	44.7															
Average Minimum Temperature (°F)	25.5	8.2	2.9	-15.2	-20.6	-17.0	-17.1	9.2	24.0															
Total Precipitation (water eq., in)	3.77	3.32	1.45	3.4	1.49	4.07	5.90	1.91	2.15															
Snowfall Amount (in)	29.0	17.0	25.3	30.1	22.0	19.0	27.0	20.0	37.0															
Max. Depth of Snow on the Ground (in)	10	27	13	26	20	16	20	60	53															

	Sourdough												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)																								
Average Maximum Temperature (°F)																								
Average Minimum Temperature (°F)																								
Total Precipitation (water eq., in)																								
Snowfall Amount (in)																								
Max. Depth of Snow on the Ground (in)																								

1971-72

	Pt. Barrow												Glennallen											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	42.5	24.1	1.5	-4.8	-11.2	-9.0	-1.7	12.9	46.3	39.9	22.9	11.5	-7.0	-16.3	-7.2	2.0	15.3	41.1						
Average Maximum Temperature (°F)	50.7	30.1	8.9	3.3	-8.8	-1.2	12.4	31.1	54.8	53.7	34.5	11.1	5.2	-2.7	8.1	18.8	33.4	53.9						
Average Minimum Temperature (°F)	34.3	19.0	-6.0	-12.3	-24.2	-12.2	-17.6	6.7	35.8	26.1	11.3	-14.0	-19.1	-30.0	-22.5	-14.8	-28.3	28.3						
Total Precipitation (water eq., in)	1.58	1.29	0.21	0.1	0.21	0.28	0.22	0.29	0.35	0.96	2.32	0.86	1.14	0.90	0.14	--	0.07	0.76						
Snowfall Amount (in)	T	14.0	5.6	9.0	1.4	3.4	3.7	9.9	2.0	0	26.7	16.7	21.8	10.1	2.6	16.2	1.9	1.0						
Max. Depth of Snow on the Ground (in)	T	10	11	11	12	12	13	11	7	0	15	19	22	30	30	38	24	0						

	Gunsight												Nankowen Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	--	18.8	-3.2	-6.2	-17.5	--	-6.9	9.2	35.0	29.2	19.9	5.6	-0.1	-10.7	-3.7	--	--	31.7						
Average Maximum Temperature (°F)	--	29.0	7.0	3.5	-3.2	--	12.3	27.6	45.0	49.7	29.7	16.8	11.1	1.0	6.1	--	--	44.8						
Average Minimum Temperature (°F)	--	8.5	-17.3	-20.3	-31.7	--	-24.1	-24.3	24.2	28.6	10.0	-5.7	-11.3	-22.3	-13.4	--	--	18.6						
Total Precipitation (water eq., in)	--	1.16	--	0.54	0.40	--	0.04	0.19	1.30	4.10	3.99	1.19	2.34	1.15	--	0.40	--	1.09						
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	1.5	29.5	13.5	26.0	15.5	--	6.0	--	12.0						
Max. Depth of Snow on the Ground (in)	4	17	--	25	27	--	20	22	24	2	17	16	34	42	--	48	--	48						

	McKinley Park												Palmer-LN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	38.4	21.4	2.7	0.8	-9.7	-2.7	-0.2	17.7	40.7	46.7	31.6	17.2	13.0	7.9	16.1	15.6	28.1	45.2						
Average Maximum Temperature (°F)	48.6	31.9	13.8	11.2	-1.0	9.3	12.8	31.9	51.5	49.8	29.9	24.2	20.7	15.2	23.7	25.6	38.8	55.4						
Average Minimum Temperature (°F)	28.1	10.8	-8.4	-9.7	-18.4	-14.5	-13.1	3.5	29.8	38.3	25.4	10.2	5.3	6	8.5	5.5	17.4	35.0						
Total Precipitation (water eq., in)	1.40	1.68	0.64	1.07	0.32	0.40	0.34	0.09	0.11	2.06	2.26	0.37	0.41	0.98	0.14	0.64	0.60	1.01						
Snowfall Amount (in)	8.0	34.6	18.0	18.1	5.9	4.2	6.1	1.7	1.2	0	10.5	8.0	15.0	10.0	1.5	14.8	9.5	2.0						
Max. Depth of Snow on the Ground (in)	0	16	26	27	25	28	31	30	25	0	4	3	11	8	7	10	7	0						

	Paxon Lake												Snowshoe Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	40.2	22.4	1.4	-5.2	-15.0	-6.5	-1.8	12.4	37.7	39.6	21.7	-2	-5.3	-14.5	-4.3	-6	14.2	37.5						
Average Maximum Temperature (°F)	50.0	31.5	12.2	5.3	-4.8	6.9	12.6	27.1	49.5	49.8	29.9	8.6	3.9	-5.5	9.0	15.6	29.8	48.8						
Average Minimum Temperature (°F)	30.4	13.3	-9.4	-15.0	-25.2	-19.9	-16.2	-2.4	25.9	29.3	13.4	-9.0	-14.5	-23.5	-17.5	-16.8	-1.4	26.1						
Total Precipitation (water eq., in)	3.69	2.58	0.74	2.59	1.11	0.74	0.74	0.24	0.84	1.42	1.46	0.97	1.33	0.34	0.23	0.50	0.10	0.95						
Snowfall Amount (in)	6.0	37.0	19.0	61.5	28.0	16.4	17.7	7.0	7.0	2.2	19.4	14.5	20.3	5.1	4.3	6.6	1.7	5.6						
Max. Depth of Snow on the Ground (in)	6	17	17	36	35	40	33	30	4	T	13	16	26	27	27	30	30	25						

Table I. (cont'd.)

	Summit												Susitna Meadows											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	38.8	20.3	5.6	2.4	-7.2	-0.8	0.6	13.5	37.2	44.0	25.8	7.7	5.0	-2.7	8.3	10.1	20.0	1	44.0	25.8	7.7	5.0	-2.7	8.3
Average Maximum Temperature (°F)	46.5	26.6	11.8	8.3	-1.1	6.3	9.0	23.6	44.4	54.7	34.8	17.8	14.4	9.2	21.6	22.8	35.5	46.5	54.7	34.8	17.8	14.4	9.2	21.6
Average Minimum Temperature (°F)	31.1	13.7	-0.7	-4.0	-13.2	-8.4	-7.8	3.3	30.0	33.3	16.3	-2.5	-4.5	-14.5	-5.1	-2.6	4.4	31.1	33.3	16.3	-2.5	-4.5	-14.5	-5.1
Total Precipitation (water equiv., in)	2.8	1.42	0.91	0.83	1.16	0.8	0.52	0.22	0.33	5.06	3.39	1.76	3.02	2.34	1.15	1.93	0.97	2.8	5.06	3.39	1.76	3.02	2.34	
Snowfall Amount (in)	8.2	35.5	24.3	42.4	29.2	4.1	22.1	3.2	2.6	2.1	32.3	34.9	52.6	28.1	15.7	30.0	13.2	8.2	2.1	32.3	34.9	52.6	28.1	
Max. Depth of Snow on the Ground (in)	2	11	23	31	38	38	34	33	25	2	15	34	52	56	67	68	63	2	2	15	34	52	56	

	Talkeetna												Tonsina Lodge											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	44.9	27.7	10.5	7.8	0.0	9.0	9.2	21.1	42.0	44.9	25.4	2.9	-3.0	-17.0	-5.5	4.2	18.9	Me	44.9	27.7	10.5	7.8	0.0	9.0
Average Maximum Temperature (°F)	54.5	35.3	21.0	17.4	11.9	23.0	24.1	35.8	52.9	54.2	36.3	13.9	6.8	-6.1	10.5	20.2	35.7	54.5	54.2	36.3	13.9	6.8	-6.1	
Average Minimum Temperature (°F)	35.2	20.1	-0.1	-1.9	-11.9	-5.7	-4.5	6.3	31.1	29.3	14.1	-8.2	-12.8	-27.8	-21.4	-12.5	1.9	29.0	35.2	20.1	-0.1	-1.9	-11.9	
Total Precipitation (water equiv., in)	3.99	2.6	1.39	2.09	1.72	0.39	1.33	1.40	2.03	1.0	1.41	0.80	1.67	8.84	9.11	0.97	0.96	3.99	2.6	1.39	2.09	1.72	0.39	
Snowfall Amount (in)	0	25.1	24.3	37.5	27.5	11.4	30.1	28.1	T	0	12.2	12.4	20.6	24	21	10.4	0.5	0	0	12.2	12.4	20.6	24	
Max. Depth of Snow on the Ground (in)	0	12	25	36	42	60	49	47	22	0	10	10	29	24	21	40	23	0	12	25	36	42		

	Trims Camp												Cekonsa-IN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	36.2	19.6	5.8	0.5	-5.4	-5.4	-	14.1	28.0	36.2	19.6	5.8	0.5	-14.5	-4.7	5.4	20.2	Me	36.2	19.6	5.8	0.5	-14.5	
Average Maximum Temperature (°F)	46.6	28.2	14.5	11.1	5.4	5.4	-	20.0	46.9	54.2	28.2	14.5	11.1	-4.5	9.4	20.2	36.4	46.6	46.6	28.2	14.5	11.1	-4.5	
Average Minimum Temperature (°F)	25.7	11.0	-3.0	-12.0	-16.2	-16.2	-	-2.6	29.0	32.6	11.0	-3.0	-12.0	-24.4	-12.8	-9.9	3.9	29.7	25.7	11.0	-3.0	-12.0	-16.2	
Total Precipitation (water equiv., in)	4.60	4.80	3.29	1.66	1.51	1.51	-	2.21	0.69	1.57	4.80	3.29	1.66	10.9	T	1.55	0.10	4.60	4.80	3.29	1.66	10.9	T	
Snowfall Amount (in)	0	47.5	40.5	34.0	23.0	23.0	-	21.0	2.0	3.7	0	40.5	34.0	20.9	T	20.1	2.0	0	0	47.5	40.5	34.0	20.9	
Max. Depth of Snow on the Ground (in)	0	22	37	49	72	72	-	71	17	17	0	37	49	20	20	30	22	0	22	37	49	20	20	

	Sourdough												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	21.2	21.2	0.7	-4.9	-	-	0.4	15.4	32.9	21.2	21.2	0.7	-4.9	-	-	-	-	-	21.2	21.2	0.7	-4.9	-	-
Average Maximum Temperature (°F)	32.0	32.0	16.4	5.2	-	-	15.6	31.8	52.9	32.0	32.0	16.4	5.2	-	-	-	-	-	32.0	32.0	16.4	5.2	-	-
Average Minimum Temperature (°F)	10.4	10.4	-15.1	-15.5	-	-	-14.8	-1.0	29.0	10.4	10.4	-15.1	-15.5	-	-	-	-	-	10.4	10.4	-15.1	-15.5	-	-
Total Precipitation (water equiv., in)	3.03	3.03	0.75	1.33	-	-	1.23	T	1.57	3.03	3.03	0.75	1.33	-	-	-	-	-	3.03	3.03	0.75	1.33	-	-
Snowfall Amount (in)	25.6	25.6	11.9	13.9	-	-	12.7	T	3.7	25.6	25.6	11.9	13.9	-	-	-	-	-	25.6	25.6	11.9	13.9	-	-
Max. Depth of Snow on the Ground (in)	18	18	25	41	-	-	49	49	38	18	18	25	41	-	-	-	-	-	18	18	25	41	-	-

	1972-73 Glennallen												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	39.5	27.6	9.5	-1.1	-15.5	-2.9	12.2	34.5	47.2	39.5	27.6	9.5	-1.1	-13.4	-5.8	14.2	32.9	41.6	39.5	27.6	9.5	-1.1	-13.4	
Average Maximum Temperature (°F)	49.0	34.7	16.2	5.5	-8.1	12.3	25.9	42.9	56.9	49.0	34.7	16.2	5.5	-0.1	11.5	20.3	43.9	55.7	49.0	34.7	16.2	5.5	-0.1	
Average Minimum Temperature (°F)	29.9	20.5	2.7	-7.7	-24.8	-6.5	-1.6	26.1	37.5	29.9	20.5	2.7	-7.7	-24.8	-23.0	-2.5	21.8	27.5	29.9	20.5	2.7	-7.7	-24.8	
Total Precipitation (water equiv., in)	1.03	0.88	0.08	0.22	0.21	0.13	0.04	0.05	0.53	1.03	0.88	0.08	0.22	0.21	0.09	0.05	0.26	T	1.03	0.88	0.08	0.22	0.21	
Snowfall Amount (in)	8.7	15.9	3.5	6.8	6.1	3.9	1.0	0.8	7.0	8.7	15.9	3.5	6.8	6.1	3.3	0.5	0.5	T	8.7	15.9	3.5	6.8	6.1	
Max. Depth of Snow on the Ground (in)	3	14	1	5	6	6	7	1	3	3	14	1	5	12	14	14	--	0	3	14	1	5	6	

	Mankomen Lake												Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb
Ave. Temperature (°F)	--	18.7	4.0	-8.2	-21.4	-5.4	6.2	22.2	36.2	--	18.7	4.0	-8.2	-3.0	-8.6	13.7	26.8	35.7	--	18.7	4.0	-8.2	-21.4	
Average Maximum Temperature (°F)	--	29.8	16.7	3.0	-7.4	12.7	23.2	38.4	46.3	--	29.8	16.7	3.0	-7.5	2.8	26.4	39.3	47.7	--	29.8	16.7	3.0	-7.4	
Average Minimum Temperature (°F)	--	7.6	-8.8	-19.4	-35.4	-23.4	-10.8	6.0	26.0	--	7.6	-8.8	-19.4	-13.5	-20.0	0.9	14.2	23.7	--	7.6	-8.8	-19.4	-35.4	
Total Precipitation (water equiv., in)	--	1.05	T	T	--	0.12	0.10	0.13	T	--	1.05	T	T	0.5	1.70	0.75	0.84	1.14	--	1.05	T	T	--	
Snowfall Amount (in)	--	--	--	--	--	--	--	--	0	--	--	--	--	11.0	6.0	10.5	10.1	8.0	--	--	--	--	--	
Max. Depth of Snow on the Ground (in)	2	14	7	8	--	16	18	15	1	2	14	7	8	28	34	44	46	42	2	14	7	8	--	

1972-73

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper River drainage basin, Alaska.

	McKinley Park												Palmer-LH												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May							
Ave. Temperature (°F)	37.0	25.2	12.7	0.7	-10.9	6.8	14.2	30.1	40.9	46.2	33.4	23.0	14.3	3.1	16.8	26.4	38.4	46.4							
Average Maximum Temperature (°F)	48.1	33.7	21.6	8.5	-2.9	19.1	26.3	41.1	54.2	54.1	40.0	29.7	20.3	11.2	26.2	35.2	47.3	57.8							
Average Minimum Temperature (°F)	25.8	16.7	3.7	-7.2	-18.9	-5.5	2.1	19.1	27.2	38.3	26.7	16.2	8.3	-5.0	7.4	17.6	29.5	35.0							
Total Precipitation (water eq., in)	3.32	0.51	0.29	1.22	0.70	T	C 28	T	0.62	5.73	3.16	0.84	0.20	1.06	0.21	0.90	0.94	0.10							
Snowfall Amount (in)	15.9	6.1	7.3	19.1	14.6	T	4.7	18	0	0.1	9.0	9.7	1.3	18.8	3.0	13.5	5.5	0							
Max. Depth of Snow on the Ground (in)	10	9	6	20	18	17	18	13	0	0	5	5	3	11	5	11	T	0							

	Paxson Lake												Snowshoe Lake												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May							
Ave. Temperature (°F)	37.5	22.8	6.3	-5.4	-14.5	-2.1	13.3	25.6	37.9	36.7	22.1	5.3	-6.9	-15.0	-1.8	13.4	28.2	38.2							
Average Maximum Temperature (°F)	48.4	33.0	17.8	2.5	-3.4	13.4	26.2	37.8	50.2	49.0	31.2	13.5	-1.1	-6.6	10.9	26.6	39.0	50.4							
Average Minimum Temperature (°F)	26.6	12.5	-5.2	-13.3	-25.6	-17.2	0.4	13.4	29.5	24.4	12.9	-2.9	-13.9	-23.3	-14.5	0.1	16.8	27.1							
Total Precipitation (water eq., in)	3.50	3.78	0.35	0.35	0.55	0.43	0.49	0.48	0.31	0.73	0.90	0.45	0.06	0.71	0.14	0.09	0.27	0.01							
Snowfall Amount (in)	13.0	34.9	13.3	8.9	11.3	13.2	14.2	9.0	--	1.9	16.3	10	1.2	8.9	2.2	1.3	6.4	T							
Max. Depth of Snow on the Ground (in)	10	20	15	18	19	24	26	23	--	7	19	24	37	61	56	65	49	35							

	Telkeetna												Tongass Lodge												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May							
Ave. Temperature (°F)	42.3	28.6	19.3	9.4	-2.9	10.1	21.0	34.3	43.7	40.8	28.4	15.9	-7.7	-7.6	-0.6	--	--	41.8							
Average Maximum Temperature (°F)	51.7	36.3	27.7	18.4	8.7	24.6	31.5	43.7	56.7	52.8	39.5	26.1	1.6	2.4	11.7	34.6	--	55.4							
Average Minimum Temperature (°F)	32.8	20.9	8.8	0.4	-14.4	-4.5	10.5	24.9	30.7	28.9	17.3	-4.3	-16.9	-17.6	-12.9	--	--	28.2							
Total Precipitation (water eq., in)	8.47	4.00	0.57	0.34	1.74	1.32	1.85	0.38	1.04	0.53	6.48	0.34	T	0.10	1.70	0.01	--	0.25							
Snowfall Amount (in)	1.6	28.4	13.8	4.7	41.3	8.1	32.9	2.4	0	T	24.7	4.3	--	2.4	18.5	0.5	--	0							
Max. Depth of Snow on the Ground (in)	1	13	11	9	39	31	43	27	6	T	10	9	8	9	42	11	--	0							

	Trims Camp												Cakana-LH												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May							
Ave. Temperature (°F)	35.8	23.2	16.3	4.3	-9.9	6.1	14.3	27.9	38.0	41.9	27.9	14.3	-2.0	-12.4	-1.7	18.9	34.6	43.0							
Average Maximum Temperature (°F)	46.0	30.8	24.4	14.8	-0.7	21.5	24.2	36.1	47.9	52.9	36.6	23.0	-1.0	-3.2	11.2	32.3	44.8	57.6							
Average Minimum Temperature (°F)	26.5	16.8	8.1	-5.3	-19.0	-9.4	4.2	19.6	28.1	30.8	19.2	-3.5	-17.0	-21.1	-14.5	1.5	24.1	38.5							
Total Precipitation (water eq., in)	8.75	7.75	0.91	0.93	1.22	0.73	2.23	1.12	0.65	1.17	2.13	0.68	0.05	0.43	0.38	T	0.58	0.15							
Snowfall Amount (in)	--	--	24.5	24.0	27.0	16.0	44.0	22.2	1.3	12.0	16.5	8.5	1.0	0.0	5.5	0.5	5.8	T							
Max. Depth of Snow on the Ground (in)	--	27	14	24	26	28	36	22	12	5	6	9	8	11	15	14	12	0							

	Sourdough												Tyone												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May							
Ave. Temperature (°F)	36.3	22.5	4.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Average Maximum Temperature (°F)	49.3	34.7	15.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Average Minimum Temperature (°F)	23.3	10.3	-5.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Total Precipitation (water eq., in)	1.96	2.24	0.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Snowfall Amount (in)	4.5	14.4	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Max. Depth of Snow on the Ground (in)	2	10	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							



Table I. (cont'd.)

1973-74

	Big Delta												Glennallen											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	44.8	23.5	-2.3	4.3	-13.7	-14.6	7.3	33.0	47.3	40.4	22.3	-7.1	-6.8	-19.3	-6.8	5.4	29.0	43.3						
Average Maximum Temperature (°F)	54.6	30.3	4.6	10.8	-6.1	-6.5	20.4	44.0	59.8	55.0	33.0	4.6	4.5	2.3	-8.1	6.4	43.4	59.4						
Average Minimum Temperature (°F)	34.9	16.7	-9.2	-2.2	-21.3	-22.6	-5.9	22.0	34.8	25.8	11.5	-18.7	15.9	-30.2	-19.9	-13.0	14.5	27.1						
Total Precipitation (water equiv., in)	0.26	0.53	0.99	T	0.11	0.42	0.09	0.05	0.43	--	--	--	--	--	--	--	0.00	0.28						
Snowfall Amount (in)	0	6.9	12.6	T	2.2	6.7	1.7	0.8	0	0	--	--	--	--	--	--	0.0	0.0						
Max. Depth of Snow on the Ground (in)	0	3	13	12	7	12	14	7	0	0	--	--	--	--	--	--	0	0						

	Gunsight												Mankoson Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	--	17.4	-1.7	-7.1	-14.8	-8.0	-0.6	--	--	40.1	22.0	-0.5	3.5	-9.6	-3.6	6.6	23.7	35.2						
Average Maximum Temperature (°F)	--	27.4	11.7	5.4	-2.0	7.5	16.9	--	--	51.7	31.5	10.9	13.5	1.0	5.3	19.0	37.7	49.5						
Average Minimum Temperature (°F)	--	7.3	-15.1	-19.6	-27.3	-23.5	-13.0	--	--	23.5	12.5	-11.9	-5.5	-20.1	-12.5	-5.9	9.7	20.9						
Total Precipitation (water equiv., in)	--	0.38	0.36	--	T	0.43	--	--	--	0.66	2.14	0.96	0.77	T	2.79	2.57	1.86	0.43						
Snowfall Amount (in)	--	--	--	--	--	--	--	--	--	--	15.0	5.5	6.5	T	28.0	25.5	19.0	T						
Max. Depth of Snow on the Ground (in)	--	10	10	10	9	19	26	--	--	--	16	--	23	23	50	59	58	32						

	McKinley Park												Palmer-LN											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	40.6	20.8	3.3	5.0	-6.1	-10.5	9.2	29.6	42.2	40.6	32.2	12.3	17.6	7.0	12.5	24.9	39.7	49.4						
Average Maximum Temperature (°F)	51.4	30.3	11.7	13.4	-1.2	-1.0	22.1	42.7	57.0	55.0	39.0	20.9	24.7	14.1	20.3	34.3	50.0	62.4						
Average Minimum Temperature (°F)	29.7	11.3	-5.2	-3.4	-14.6	-19.9	-4.2	15.2	27.3	35.2	25.3	4.7	10.4	-0.2	4.6	15.4	29.4	36.4						
Total Precipitation (water equiv., in)	0.52	0.57	0.92	0.16	0.05	0.25	0.15	0.14	0.26	0.91	1.95	0.44	0.27	0.00	0.83	0.56	0.45	0.70						
Snowfall Amount (in)	5.2	9.3	14.9	4.2	4.9	6.1	2.2	3.7	0	0	4.2	7.3	4.5	0.0	14.4	10.8	T	0						
Max. Depth of Snow on the Ground (in)	5	4	11	10	12	14	15	11	0	0	2	6	4	1	3	11	0	0						

	Passon Lake												Snowshoe Lake											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	40.2	22.1	-5.0	-3.2	-16.1	-6.0	2.7	29.2	40.1	40.2	31.5	-2.6	-4.0	-14.6	-4.0	7.7	27.4	41.5						
Average Maximum Temperature (°F)	52.4	32.7	8.2	6.4	-4.7	3.0	20.7	39.1	54.6	50.2	30.0	6.0	4.1	-5.9	6.6	22.2	40.5	54.2						
Average Minimum Temperature (°F)	28.0	12.5	-12.2	-12.9	-27.5	-14.9	-13.4	11.4	25.2	27.6	13.0	-11.2	-15.0	-23.2	-14.6	-6.9	14.2	23.7						
Total Precipitation (water equiv., in)	0.24	1.19	0.73	0.45	0.33	1.31	0.77	1.34	0.31	0.24	0.41	0.42	0.25	0.14	1.30	0.27	T	0.90						
Snowfall Amount (in)	1.0	17.5	19.0	10.2	0.4	32.5	21.4	6.5	0	1.0	3.3	7.5	3.2	1.6	14.9	3.5	T	0.9						
Max. Depth of Snow on the Ground (in)	1	11	20	21	13	38	33	28	0	1	6	10	11	11	21	32	10	0						

	Summit												Susitna Meadows											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	39.1	19.6	3.3	8.3	-4.6	-4.5	9.9	--	41.2	39.1	24.5	3.0	3.0	-0.4	7.8	17.7	32.6	47.6						
Average Maximum Temperature (°F)	47.1	25.2	9.2	13.5	1.1	0.4	17.5	--	52.2	55.0	35.6	15.4	23.1	11.8	17.0	30.4	46.2	63.7						
Average Minimum Temperature (°F)	31.0	13.9	-2.6	2.9	-10.2	-9.3	2.2	--	30.3	23.3	13.4	-2.2	6.2	-12.6	-2.0	5.0	13.9	31.5						
Total Precipitation (water equiv., in)	0.85	2.06	0.91	1.14	0.13	1.19	0.77	--	0.16	0.84	3.88	0.65	0.50	0.00	1.81	1.66	0.23	0.23						
Snowfall Amount (in)	7.8	24.2	9.2	12.1	1.4	12.3	9.3	--	0.9	1.0	29.5	11.2	8.9	0.0	28.9	22.4	13.5	0.0						
Max. Depth of Snow on the Ground (in)	1	14	11	14	13	15	18	--	2	0	18	20	24	21	33	38	30	10						

	Tahkettine												Tonsina Lodge											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
Ave. Temperature (°F)	44.2	26.8	7.6	14.3	1.2	11.5	19.4	35.8	47.6	44.2	24.8	-3.0	-5.8	-18.0	-3.9	7.7	30.7	43.0						
Average Maximum Temperature (°F)	55.0	37.0	20.0	24.1	11.9	20.9	31.3	45.8	62.3	55.0	34.5	8.7	4.6	-6.9	10.0	26.4	45.6	59.2						
Average Minimum Temperature (°F)	33.3	16.6	-4.9	4.5	-9.5	-2.1	7.4	25.7	32.9	29.9	15.1	-14.7	-16.2	-29.1	-17.7	-11.0	15.8	26.8						
Total Precipitation (water equiv., in)	1.51	2.59	0.61	0.74	T	0.85	0.88	1.63	0.38	0.54	0.16	0.10	0.51	0.12	1.68	0.02	0.00	0.53						
Snowfall Amount (in)	0	23.3	13.7	16.2	T	19.9	21.1	10.0	0	0	0.0	--	--	--	17.5	1.0	0.0	0						
Max. Depth of Snow on the Ground (in)	0	13	17	29	25	35	48	17	T	0	0	--	--	--	24	20	15	0						

Table I. (cont'd.) Monthly climatic summaries for stations in the vicinity of the Upper Susitna River drainage basin, Alaska.

	Cakona-111											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Ave. Temperature (°F)	40.2	20.2	0.1	10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3
Average Maximum Temperature (°F)	50.5	27.1	9.1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Minimum Temperature (°F)	30.9	12.1	7.5	0.0	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3	-10.3
Total Precipitation (water equiv., in)	1.02	2.13	0.64	0.73	0.03	1.22	0.40	1.77	3.27	0.47	0.36	0.36
Snowfall Amount (in)	3.8	21.1	12.6	11.0	1.0	21.1	0.0	1.1	1.1	0.0	0.0	0.0
Max. Depth of Snow on the Ground (in)	2	9	12	17	10	22	20	22	22	19	19	19
	Tyone											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Ave. Temperature (°F)	---	---	---	---	---	---	---	---	---	---	---	---
Average Maximum Temperature (°F)	---	---	---	---	---	---	---	---	---	---	---	---
Average Minimum Temperature (°F)	---	---	---	---	---	---	---	---	---	---	---	---
Total Precipitation (water equiv., in)	---	---	---	---	---	---	---	---	---	---	---	---
Snowfall Amount (in)	---	---	---	---	---	---	---	---	---	---	---	---
Max. Depth of Snow on the Ground (in)	---	---	---	---	---	---	---	---	---	---	---	---

Table II. Ice thickness observations across Alaskan rivers.

CANTWELL  
Measurements made on Susitna River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
10 Apr 1962	320	0.6	4.7	12 Mar 1964	220	2.6	4.3
7 Jan 1963	Missing	1.3	3.8	8 Feb 1965	260	2.7	4.2
10 Feb 1963	Missing	1.5	4.0	21 Jan 1967	280	3.0	5.3
4 Apr 1963	220	1.8	3.2	28 Mar 1967	80	2.3	5.2
2 May 1963	290	2.1	2.7	23 Mar 1970	212	3.1	4.2
23 Dec 1963	100	1.1	3.2				

COPPER CENTER  
Measurements made on Klutina River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
18 Jan 1950	38	open water	1.9	19 Dec 1961	Missing	3.0	3.4
5 Apr 1950	75	open water	1.6	13 Mar 1962	Missing	2.5	5.0
20 Dec 1950	17	2.7	3.9	5 Dec 1962	Missing	2.5	3.5
14 Mar 1951	26	3.5	4.2	5 Feb 1963	Missing	2.0	4.5
24 Mar 1953	38	2.8	5.0	18 Mar 1963	30	1.1	5.5
8 Jan 1954	50	2.4	4.7	28 Apr 1963	48	1.2	4.8
28 Feb 1954	49	3.1	4.0	13 Jan 1964	Missing	4.2	4.5
17 Dec 1960	50	slush	3.3	2 Mar 1964	52	2.3	4.3
13 Jan 1961	49	1.7	3.3	12 Apr 1964	46	water on ice	4.0
20 Feb 1961	70	2.7	4.0	18 Jan 1967	40	3.2	3.6
7 Apr 1961	57	0.5	2.0	24 May 1967	3	slush on ice	4.8

LAKONA  
Measurements made on Lakona River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
12 Jan 1950	70	0.9	1.8	14 Feb 1961	46	2.4	4.0
7 Apr 1950	50	3.8	4.0	3 Apr 1961	47	0.1	3.1
7 Dec 1950	80	1.7	2.4	14 Dec 1961	Missing	2.0	3.5
27 Nov 1951	72	0.6	1.5	12 Mar 1962	Missing	1.1	3.8
26 Mar 1952	75	open water	2.8	5 Dec 1962	Missing	0.1	3.3
21 Dec 1952	75	1.2	2.7	2 Feb 1963	Missing	0.7	3.1
16 Dec 1953	81	2.7	3.5	18 Mar 1963	52	0.1	2.5
3 Feb 1954	60	1.4	2.7	28 Apr 1963	52	open water	3.0
12 Nov 1954	35	0.1	0.1	18 Nov 1963	Missing	0.7	1.5
11 Feb 1955	64	0.1	0.1	12 Jan 1964	Missing	1.7	4.1
13 Apr 1955	36	1.4	3	1 Apr 1965	51	1.4	2.6
7 Dec 1956	105	0.8	0.1	1 Jan 1965	3	2.5	5.6
20 Dec 1956	55	1.1	2.7	1 Dec 1965	120	1.7	2.6
15 Dec 1960	74	0.3	1	1 Mar 1966	40	open water	3.7
10 Jan 1961	67	0.0	0.3	13 Mar 1966	17	0.1	3.1

LUTHERVILLE  
Measurements made on Lutina River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
20 Jan 1950	100	1.4	3.5	10 Mar 1967	Missing	1.4	2.0
4 Apr 1950	120	0.7	3.5	1 Feb 1967	Missing	0.1	3.6
12 Dec 1950	124	0.7	1.7	1 Jan 1967	72	1.5	3.8
12 Mar 1951	90	1.2	0.7	10 Mar 1967	Missing	1.7	3.5
13 Mar 1952	54	0.7	0.7	1 Mar 1968	46	2.7	2.8
28 Mar 1953	110	0.8	0.7	11 Apr 1968	46	0.3	2.8
8 Jan 1954	105	0.7	4.0	14 Jan 1969	110	1.0	2.8
1 Mar 1954	117	0.7	3.7	21 Jan 1969	43	1.0	3.0
16 Mar 1955	117	1.7	3.7	18 Jan 1969	106	2.5	4.0
17 Jan 1959	120	0.3	4.0	23 Mar 1969	103	1.0	3.0
12 Mar 1959	121	0.7	0.7	1 Dec 1969	104	0.3	2.6
18 Feb 1961	220	1.0	0.7	1 Mar 1971	117	slush	3.1
4 Apr 1961	186	0.7	0.7	16 Dec 1971	61	1.1	3.2
10 Dec 1961	Missing	1.0	0.7				

LUTHERVILLE  
Measurements made on Susitna River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
12 Mar 1950	110	0.1	1	16 Mar 1961	310	1.5	4.0
28 Dec 1950	80	1.3	3	4 Jan 1962	Missing	2.3	3.1
21 Feb 1951	35	0.1	0.7	20 Feb 1962	Missing	3.0	4.6
1 Apr 1952	300	1.3	4.0	1 Apr 1963	200	3.4	5.7
18 Mar 1953	132	1.1	3.5	23 Dec 1963	Missing	1.5	3.4
12 Dec 1953	200	0.4	3.4	19 Feb 1964	200	1.8	3.7
11 Feb 1954	472	0.0	0.7	12 Mar 1965	170	1.7	3.8

Table II. (cont'd.) Ice thickness observations across Alaskan rivers.

GOLD CREEK  
Measurements made on Susitna River  
(continued)

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
30 Mar 1954	424	3.4	4.8	19 Jan 1967	130	2.3	2.8
24 Apr 1955	360	1.6	4.3	8 Apr 1967	155	2.7	3.9
5 Jan 1956	155	1.9	4.6	15 Apr 1969	582	1.6	4.2
17 Apr 1956	130	1.5	4.1	1 Apr 1970	290	2.5	3.8

LIGHTS  
Measurements made on Kilik River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
9 Nov 1965	160	slush	1.5	18 Feb 1969	77	1.9	3.3
15 Mar 1966	66	0.3	0.9	19 Mar 1970	68	5.5	6.0
21 Feb 1968	70	1.2	2.7	8 Dec 1971	50	1.3	2.3

PALMER  
Measurements made on Little Susitna River

Date	River width (ft.)	Ice Thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
26 Jan 1950	21	0.1	1.5	28 Dec 1964	34	0.4	0.9
16 Feb 1950	27	1.1	1.7	14 Jan 1965	34	0.3	0.6
6 Feb 1953	19	0.2	1.2	24 Feb 1965	29	open water	0.7
2 Mar 1954	29	0.5	1.8	26 Nov 1965	45	open water	1.2
20 Jan 1956	28	0.3	1.1	28 Dec 1965	36	0.1	0.5
26 Dec 1961	21	1.2	1.4	30 Jan 1966	22	0.4	0.9
10 Dec 1962	44	open water	0.8	24 Feb 1966	33	0.5	0.8
21 Dec 1962	35	open water	1.3	27 Dec 1967	26	0.2	0.5
4 Jan 1963	34	open water	0.9	25 Nov 1968	26	0.2	1.9
9 Jan 1963	Missing	0.5	1.0	27 Dec 1968	34	0.3	0.9
15 Jan 1963	37	open water	0.8	27 Jan 1969	30	0.4	1.0
5 Feb 1963	Missing	0.4	2.7	25 Mar 1969	41	0.2	1.3
12 Feb 1963	Missing	0.8	2.3	27 Jan 1970	45	open water	0.9
12 Nov 1963	48	0.3	1.6	23 Mar 1970	40	0.5	0.9
21 Nov 1963	35	0.1	1.1	28 Dec 1970	46	0.3	1.2
27 Nov 1963	30	open water	1.7	25 Jan 1971	29	1.1	2.1
9 Dec 1963	46	0.2	1.3	26 Mar 1971	32	0.1	0.5
11 Dec 1963	43	open water	0.6	22 Dec 1971	29	0.5	1.1
13 Nov 1964	40	0.1	1.8	26 Jan 1972	38	0.6	1.1
14 Dec 1964	34	0.7	2.0	24 Feb 1972	41	0.5	1.0

PALMER  
Measurements made on Matanuska River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
11 Jan 1951	135	1.2	2.4	15 Jan 1963	65	1.2	4.5
13 Feb 1951	130	1.6	2.0	29 Nov 1963	Missing	2.1	2.7
20 Mar 1951	130	0.8	2.0	10 Dec 1963	Missing	1.7	2.5
17 Jan 1952	195	0.6	3.5	20 Dec 1963	Missing	2.0	2.8
30 Dec 1952	108	0.8	2.2	17 Feb 1964	145	1.4	2.5
31 Dec 1954	308	0.5	1.4	1 Dec 1964	165	0.2	1.0
16 Dec 1955	180	1.3	2.5	5 Jan 1965	175	1.6	2.2
3 Jan 1956	214	1.8	3.5	19 Dec 1965	120	slush	2.8
24 Jan 1956	210	1.7	3.0	28 Jan 1966	100	0.8	2.9
11 Jan 1961	300	slush	3.0	3 Mar 1966	176	0.3	2.2
28 Dec 1961	135	slush	5.3	15 Jan 1968	202	0.8	2.1
30 Jan 1962	Missing	1.8	3.0	26 Nov 1968	135	0.2	1.2
14 Feb 1962	Missing	1.0	3.0	28 Jan 1969	150	2.7	4.1
10 Dec 1962	275	1.3	2.6	30 Jan 1970	155	1.0	1.8
12 Dec 1962	Missing	1.4	2.6	14 Dec 1970	280	0.3	3.2
31 Dec 1962	75	1.5	4.0	13 Jan 1972	105	0.2	1.6
9 Jan 1963	Missing	1.8	3.2	28 Mar 1972	100	1.2	2.2

PAXSON  
Measurements made on MacLaren River

Date	River width (ft.)	Ice thickness (ft)		Date	River width (ft.)	Ice thickness (ft)	
		Least	Greatest			Least	Greatest
17 Nov 1960	50	slush	1.1	6 Dec 1963	Missing	2.2	2.8
3 Jan 1961	48	slush	2.7	12 Mar 1964	45	4.7	5.2
1 May 1961	17	slush	2.0	4 Dec 1964	48	1.7	4.0
26 Nov 1961	Missing	0.8	1.4	8 Feb 1965	46	3.0	3.6
20 Jan 1962	Missing	2.0	2.5	21 Jan 1967	50	1.5	2.4
7 Jan 1963	Missing	2.0	2.3	27 Mar 1968	106	2.4	3.4
19 Feb 1963	Missing	2.8	3.3	14 Apr 1969	60	4.7	5.2
4 Apr 1963	50	3.3	4.2				

Table II. (cont'd.)

SKWENTA  
Measurements made on Skwenta River

Date	River width (ft.)	Ice thickness (ft.)		Date	River width (ft.)	Ice thickness (ft.)	
		Least	Greatest			Least	Greatest
14 Mar 1961	270	slush	2.9	16 Mar 1964	200	slush	2.9
3 May 1961	320	1.9	3.8	13 Jan 1965	95	0.8	1.9
18 Jan 1962	Missing	2.4	3.1	19 Mar 1965	85	2.0	4.4
Date	River width (ft.)	Ice thickness (ft.)		Date	River width (ft.)	Ice thickness (ft.)	
		Least	Greatest			Least	Greatest
9 Mar 1962	Missing	2.3	2.9	1 Feb 1966	250	slush	2.8
2 Jan 1963	Missing	1.5	2.5	14 Feb 1967	220	slush	2.7
18 Feb 1963	Missing	3.2	3.7	29 Mar 1967	120	2.3	3.1
5 Apr 1963	235	2.9	4.1	26 Mar 1968	230	2.2	4.0
27 Nov 1963	Missing	1.0	1.6	1 Apr 1969	116	1.0	3.0
23 Jan 1964	Missing	1.9	2.7	19 Jan 1972	165	slush	4.5

TALKEETNA  
Measurements made on Talkeetna River

Date	River width (ft.)	Ice thickness (ft.)		Date	River width (ft.)	Ice thickness (ft.)	
		Least	Greatest			Least	Greatest
15 Mar 1961	125	slush	5.0	18 Jan 1966	170	1.2	4.9
27 Nov 1961	Missing	0.7	1.2	9 Apr 1967	190	2.4	4.4
2 Feb 1962	Missing	2.0	3.0	26 Mar 1968	260	slush	3.1
29 Mar 1962	Missing	2.8	3.0	23 Dec 1968	278	open water	2.2
3 Jan 1963	Missing	2.4	3.5	4 Apr 1969	165	0.2	3.0
18 Feb 1963	Missing	2.8	4.2	31 Mar 1970	190	0.9	3.5
27 Nov 1963	Missing	0.2	1.8	1 Apr 1971	200	2.2	5.3
23 Jan 1964	Missing	1.8	3.1	18 Jan 1972	195	0.5	2.4
12 Jan 1965	180	1.3	4.2	17 Apr 1972	145	2.2	5.0

TALKEETNA  
Measurements made on Talkeetna River

Date	River width (ft.)	Ice thickness (ft.)		Date	River width (ft.)	Ice thickness (ft.)	
		Least	Greatest			Least	Greatest
14 Jan 1966	182	slush	3.2	21 Dec 1968	207	1.4	2.1
29 Jan 1966	155	1.0	3.2	9 Apr 1969	210	open water	3.3
16 Mar 1966	135	0.7	3.0	1 Apr 1970	216	1.3	2.3
7 Apr 1967	170	1.7	2.9	31 Mar 1971	285	1.1	2.8
10 Jan 1968	245	0.7	2.3				

WINOY  
Measurements made on Winoy River

Date	River width (ft.)	Ice thickness (ft.)		Date	River width (ft.)	Ice thickness (ft.)	
		Least	Greatest			Least	Greatest
7 Feb 1951	80	1.3	4.3	28 Nov 1961	Missing	open water	2.2
22 Dec 1951	142	0.6	2.5	19 Jan 1962	Missing	1.0	3.4
26 Jan 1953	105	1.7	3.3	10 Apr 1962	140	0.1	4.8
19 Mar 1953	63	0.5	3.5	20 Feb 1963	Missing	0.1	3.3
17 Feb 1954	92	0.8	3.5	5 Apr 1963	80	0.7	3.4
26 Mar 1954	94	1.0	3.8	4 Dec 1963	Missing	0.6	3.0
16 Nov 1954	147	0.5	1.2	9 Jan 1964	Missing	0.7	3.7
12 Jan 1955	117	1.5	3.0	9 Apr 1964	80	open water	2.0
17 Feb 1955	140	1.5	3.5	5 Dec 1964	80	1.5	2.9
23 Apr 1955	95	0.2	4.0	18 Jan 1965	80	1.4	3.9
6 Jan 1956	160	1.3	3.7	28 Jan 1965	80	0.1	3.9
18 Apr 1956	60	0.9	4.5	17 Feb 1965	80	0.8	3.3
4 Jan 1961	152	1.0	1.0	26 Mar 1965	80	2.4	4.1
16 Mar 1961		1.1	3.8	27 Mar 1966	120	0.3	3.1
2 May 1961	85	open water	3.1	2 Apr 1970	160	0.2	2.4
				7 Dec 1971	150	1.8	3.2
				18 Apr 1972	52	0.4	3.6

Table III. Snow course measurements of depth, water equivalent and computed densities at soil conservation survey sites in Alaska.

Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )	Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )	Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )
RAID MOUNTAIN LAKE Measurements made at: 62°15'N, 149°05'W; Elevation-2150 ft.											
2/27/64*	30	5.4	.190	3/20/68*	43	12.1	.281	4/30/71*	47	14.1	.300
3/26/64*	36	7.8	.190	4/30/68*	51	13.8	.271	2/3/72*	37	7.0	.180
5/11/64*	45	11.3	.251	2/2/69	13	1.8	.138	2/25/72*	24	6.7	.270
2/3/65*	12	2.2	.183	2/20/69	24	3.7	.150	3/30/72*	40	10.5	.263
2/24/65*	7	4.7	.181	2/20/69	18	4.0	.222	4/27/72*	45	11.2	.240
4/1/65*	27	5.4	.200	4/20/69	13	3.2	.241	1/31/73*	26	5.2	.200
2/2/66*	22	4.4	.200	2/2/70*	1	1.3	.194	3/2/73*	24	4.8	.200
3/3/66*	21	4.2	.200	2/20/70*	14	2.4	.171	3/30/73*	41	11.5	.260
3/28/66*	13	2.7	.208	2/31/70*	22	4.8	.218	5/1/73*	20	12.0	.308
2/1/67*	6	1.3	.217	5/4/70*	25	6.2	.248	1/20/74*	14	2.8	.200
3/30/67*	20	5.5	.190	2/2/71*	20	1.1	.210	2/28/74*	27	1.5	.241
5/1/67*	33	9.4	.286	2/25/71	42	9.2	.210	4/1/74*	25	7.0	.280
2/29/68	44	11.7	.266	3/20/71*	4	11.5	.250	4/20/74*	28	7.5	.268
HAGGARD CREEK Measurements made at: 62°00'N, 149°00'W; Elevation-2100 ft.											
4/10/64	22	3.0	.197	3/28/68	24	4.4	.200	4/30/71	26	4.7	.268
5/11/64*	16	3.2	.200	4/30/68*	19	4.0	.258	2/3/72	38	7.5	.197
4/2/65	18	1.5	.250	2/2/69	15	2.1	.190	2/25/72	37	9.0	.217
2/2/66*	20	1.3	.220	2/20/69	16	2.7	.184	3/30/72	38	9.0	.237
3/3/66	25	5.1	.204	3/20/69	17	2.1	.157	4/27/72	39	9.4	.241
3/28/66	26	4.0	.227	4/20/69	0	No snow		1/31/73	30	5.2	.173
4/28/66*	10	4.6	.242	2/2/70	15	2.0	.125	3/2/73	30	5.6	.187
2/1/67	17	3.1	.182	2/20/70	15	2.1	.140	3/30/73*	27	5.0	.211
2/28/67	25	4.4	.174	2/20/70	15	2.1	.140	5/1/73	17	4.4	.271
3/30/67*	21	4.2	.200	4/2/70	10	2.2	.270	1/20/74	10	2.0	.153
5/1/67*	14	4.0	.286	2/2/71	22	4.4	.206	2/28/74	27	1.8	.185
2/1/68*	20	4.0	.290	2/25/71	2	5.1	.200	4/1/74	21	5.5	.196
2/29/68*	21	4.4	.212	3/20/71*	40	6.2	.223	4/20/74*	12	2.4	.283
WILSON LAKE Measurements made at: 62°00'N, 149°00'W; Elevation-2000 ft.											
2/25/60	47	11.8	.251	3/30/66	42	9.7	.231	3/30/71	49	17.1	.300
3/24/60	63	15.3	.243	5/2/66	43	11.4	.265	5/4/71	59	18.9	.320
4/25/60	57	16.5	.289	2/27/67	29	5.4	.186	1/27/72	42	10.7	.245
3/31/62	53	15.7	.296	3/30/67	36	8.3	.231	2/29/72	53	14.4	.272
4/28/62	52	16.7	.321	4/28/67	35	9.1	.260	3/28/72	62	16.8	.271
2/24/63	44	8.2	.186	2/27/68	55	12.7	.231	4/26/72	61	19.0	.311
4/6/63	56	16.7	.298	3/28/68	49	14.2	.290	1/31/73	34	8.4	.247
5/1/63	51	13.6	.267	4/30/68	50	14.2	.284	2/28/73	39	9.0	.231
3/5/64	39	7.3	.187	2/27/69	17	2.2	.129	3/29/73	44	10.8	.245
4/2/64	42	9.4	.224	3/26/69	18	3.2	.178	5/1/73	40	11.2	.280
5/1/64	45	11.0	.244	4/28/69	8	1.8	.225	1/30/74	19	3.6	.189
3/2/65	31	6.6	.213	2/25/70	27	5.1	.189	2/27/74	36	7.6	.211
3/31/65	29	7.2	.248	4/2/70	35	7.1	.203	3/31/74	41	9.7	.237
5/1/65	31	8.8	.284	4/28/70	32	8.5	.266	4/29/74	37	11.3	.305
3/1/66	42	9.3	.221								
FOG LAKE #1 Measurements made at: 62°47'N, 148°30'W; Elevation-2270 ft.											
2/7/64	9	1.0	.111	2/6/68	24	5.5	.229	2/2/71*	24	5.0	.208
4/10/64*	8	1.4	.175	2/29/68	26	5.6	.215	2/25/71*	37	6.8	.184
5/11/64*	12	2.1	.175	3/28/68	28	6.9	.246	3/30/71*	30	6.6	.220
2/3/65*	12	1.4	.117	4/30/68	23	5.8	.252	4/30/71*	27	7.6	.281
4/2/65*	12	1.7	.142	2/2/69	9	1.2	.133	2/3/72*	27	5.4	.200
2/2/66*	8	1.6	.200	2/27/69	10	1.2	.120	2/25/72*	27	5.5	.204
3/3/66	16	3.4	.213	3/27/69	14	1.7	.121	3/30/72*	40	8.0	.200
3/28/66	17	3.6	.212	4/29/69*	0	No snow on ground		4/27/72*	32	8.0	.250
4/28/66	18	4.4	.244	2/6/70	6	0.6	.100	1/31/73*	21	4.0	.190
2/1/67	9	1.9	.211	2/26/70	8	1.2	.150	3/2/73*	19	4.4	.232
2/28/67*	12	2.3	.192	3/31/70	8	1.8	.225	3/30/73*	21	5.0	.238
3/30/67	20	3.8	.190	5/4/70*	0	No snow on ground		5/1/73*	18	5.0	.278
5/1/67	14	4.0	.286								
Station abandoned in 1974. Location exposed to wind erosion, measurements not representative for the area.											
FOG LAKE #2 Measurements made at: 62°47'N, 148°29'W; Elevation-2250 ft.											
2/6/70	12	1.2	.100	4/30/71	33	9.2	.279	3/30/73	34	8.0	.235
2/26/70	15	2.1	.140	2/3/72	35	6.3	.180	5/1/73	27	7.7	.285
3/31/70	14	2.8	.200	2/25/72	31	6.5	.210	1/29/74	15	2.4	.160
5/4/70	6	1.5	.250	3/30/72	34	7.5	.221	2/28/74	20	1.6	.180
2/2/71	30	6.9	.230	4/27/72	37	8.6	.232	4/1/74	24	4.4	.200
2/25/71	38	8.5	.224	1/31/73	32	6.5	.203	4/30/74*	15	3.6	.340
3/30/71	37	8.4	.277	3/2/73*	31	6.9	.223				
HAGGARD CREEK Measurements made at: 62°42'N, 145°28'W; Elevation-2540 ft.											
2/28/64*	12	2.2	.183	3/28/68	28	6.3	.225	1/27/72	25	7.8	.223
4/10/64*	22	4.4	.200	4/30/68	24	5.9	.246	2/29/72	37	8.3	.251
4/2/65*	18	3.6	.200	2/2/69*	15	1.7	.113	3/28/72	45	10.4	.231

\*Snow depth on this date measured from aerial marker and water equivalent, snow density values estimated.

Table III. (cont'd.)

Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )	Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )	Date	Depth (inches)	Water Equivalent (inches)	Computed Density (g/cm <sup>3</sup> )
HAGGARD CREEK (continued) Measurements made at: 62°42'N, 145°28'W; Elevation-2540 ft.											
2/2/66*	26	5.2	.200	2/27/69	12	1.6	.133	4/26/72	41	10.9	.266
3/4/66	28	5.6	.200	3/26/69	18	3.0	.167	1/31/73	21	3.5	.167
3/28/66	30	6.3	.210	4/28/69	0	No snow on ground		2/28/73	21	4.0	.190
4/28/66	25	5.6	.224	2/6/70*	14	1.8	.129	3/29/73	21	3.8	.181
2/2/67*	21	3.8	.181	2/25/70	12	2.3	.192	5/1/73	20	4.5	.255
3/27/67	26	4.2	.150	4/1/70	13	2.8	.215	1/29/74	19	3.4	.179
3/30/67	31	6.7	.216	4/29/70	10	2.2	.220	2/29/74	29	5.4	.186
4/28/67	26	6.2	.238	3/2/71	27	5.1	.189	4/1/74	34	7.2	.212
2/7/68*	28	5.0	.179	3/30/71	27	6.1	.256	4/21/74	24	6.4	.267
2/27/68	31	6.0	.194	5/4/71	26	6.6	.254				
LAKE LOUISE Measurements made at: 62°17'N, 146°30'W; Elevation-2400 ft.											
2/28/64	31	3.2	.103	3/1/68	22	4.3	.195	3/31/71	20	3.6	.180
4/10/64	18	3.2	.178	3/29/68	28	4.6	.164	4/30/71	16	3.2	.200
5/11/64	14	4.4	.314	4/30/68	20	4.5	.225	2/4/72	30	5.6	.187
4/2/65	16	3.1	.193	1/31/69	16	2.1	.131	3/31/72	33	7.0	.212
2/2/66*	18	3.6	.200	2/28/69	16	2.4	.150	4/28/72	30	6.9	.230
3/4/66	20	3.8	.190	3/28/69	17	2.7	.159	2/1/73	23	3.1	.135
3/29/66	22	3.9	.177	4/29/69*	0	No snow on ground		3/3/73	22	3.7	.168
4/28/66*	8	2.0	.250	2/7/70	13	1.5	.115	3/31/73	22	4.2	.191
2/2/67	18	3.0	.167	2/27/70	14	1.8	.129	5/1/73*	10	3.0	.300
2/27/67	24	4.4	.183	4/1/70	14	2.1	.150	1/30/74	14	1.8	.129
4/1/67*	30	6.0	.200	5/4/70		1.2	.240	3/1/74	25	3.8	.152
5/1/67	22	5.0	.227	2/3/71	16	2.4	.150	4/2/74	25	4.7	.188
2/7/68	19	3.2	.168	2/26/71	16	3.0	.188	4/30/74	15	3.7	.246
LITTLE NELCHINA Measurements made at: 62°07'N, 147°36'W; Elevation-4160 ft.											
2/8/68*	14	2.8	.200	4/1/70*	19	3.4	.179	2/1/73*	21	3.6	.171
3/1/68*	22	4.4	.200	2/3/71*	21	4.0	.190	3/3/73*	22	4.4	.200
3/29/68*	22	5.3	.241	2/26/71*	26	5.2	.200	3/31/73*	24	5.0	.208
4/30/68*	21	5.5	.262	3/31/71*	26	5.2	.241	5/1/73*	27	6.5	.240
1/31/69*	15	2.6	.173	4/30/71*	33	6.9	.209	1/30/74*	16	2.6	.163
2/28/69*	20	3.2	.160	2/4/72*	27	5.1	.189	3/1/74*	21	3.6	.171
3/27/69*	19	3.4	.179	2/26/72*	26	5.5	.212	4/2/74*	22	4.4	.200
4/29/69*	19	4.2	.221	3/31/72*	28	6.0	.214	4/30/74*	25	5.0	.200
2/27/70*	20	3.7	.185	4/28/72*	28	6.2	.221				
MONAHAN FLAT Measurements made at: 63°18'N, 147°39'W; Elevation-2710 ft.											
2/27/64	30	5.6	.187	3/28/68	38	8.2	.216	4/30/71*	41	10.7	.260
4/10/64*	23	4.1	.178	4/30/68	38	9.8	.258	2/3/72*	36	6.8	.189
5/11/64*	30	7.2	.240	2/2/69*	18	2.7	.150	2/25/72	33	8.4	.255
4/2/65*	25	5.5	.220	2/27/69	22	3.6	.164	3/30/72	38	9.0	.236
2/2/66*	24	5.5	.229	3/27/69*	20	3.2	.160	4/27/72	43	10.3	.239
3/3/66*	32	6.4	.200	4/29/69*	13	3.2	.246	1/31/73	35	6.7	.191
3/28/66*	27	6.1	.226	2/6/70	21	3.0	.143	3/2/73	31	6.9	.223
4/28/66	30	7.1	.237	2/26/70	19	3.7	.195	3/30/73*	34	7.5	.220
2/2/67*	19	3.4	.179	3/31/70*	40	4.0	.200	5/1/73*	31	7.8	.252
2/28/67	25	5.1	.204	5/4/70	23	5.6	.243	1/29/74	17	2.8	.164
3/30/67	26	5.2	.200	2/2/71	30	6.5	.217	2/28/74*	22	3.9	.177
5/1/67*	24	7.2	.300	2/25/71	40	8.9	.222	4/1/74*	22	4.2	.190
2/7/68	32	6.6	.206	3/30/71*	44	10.1	.229	4/30/74*	19	4.8	.253
2/29/68*	39	8.2	.210								
OSHETNA LAKE Measurements made at: 62°23'N, 147°29'W; Elevation-2950 ft.											
2/28/64*	16	2.7	.169	3/1/68	16	3.0	.188	4/30/71*	15	3.3	.220
4/10/64*	20	3.6	.180	3/29/68	20	3.3	.165	2/3/72	26	4.4	.169
5/11/64*	20	4.0	.200	4/30/68*	14	3.2	.229	2/26/72	27	4.9	.181
3/2/65*	13	2.2	.169	1/31/69	13	2.1	.162	3/31/72	28	5.7	.204
4/2/65*	20	3.6	.180	2/28/69	17	2.4	.141	4/28/72	28	6.0	.214
2/2/66*	17	3.1	.182	3/28/69	16	2.6	.163	2/1/73	23	3.6	.156
3/4/66	16	2.8	.175	4/29/69	10	2.1	.210	3/3/73	23	4.1	.178
3/29/66	18	2.9	.161	2/7/70	12	1.9	.158	3/31/73*	23	4.6	.200
4/28/66	16	3.2	.200	2/27/70	11	1.8	.164	5/1/73*	14	3.5	.250
2/2/67*	17	2.9	.171	4/1/70	12	1.9	.158	1/30/74	14	2.1	.150
2/27/67	26	3.9	.150	5/4/70*	6	1.4	.233	3/1/74	21	3.5	.167
4/1/67*	24	4.6	.191	2/3/71	18	2.9	.161	4/2/74	20	3.8	.190
5/1/67*	14	3.9	.279	2/26/71	20	3.7	.185	4/30/74*	13	3.5	.269
2/8/68	14	2.4	.171	3/31/71	19	3.7	.195				
TALKEETNA Measurements made at: 62°18'N, 150°05'W; Elevation-350 ft.											
2/1/67	21	4.6	.219	4/29/69	0	No snow on ground		3/30/72	52	12.2	.235
2/28/67	29	5.6	.193	2/2/70	13	2.2	.169	4/27/72	50	14.3	.286
3/30/67	13	7.7	.233	2/26/70	15	2.9	.193	1/31/73	34	5.5	.162
5/1/67	29	9.8	.338	3/31/70	11	2.6	.236	3/2/73	25	5.8	.232
2/6/68	31	8.4	.271	5/4/70	0	No snow on ground		3/30/73	32	8.5	.266
2/29/68	40	10.6	.265	2/2/71	29	6.2	.213	5/1/73	15	5.3	.353
3/28/68	37	10.6	.286	2/25/71	39	8.8	.226	1/29/74	19	3.9	.205
4/30/68	30	9.9	.330	3/30/71	40	10.0	.250	2/28/74	28	5.0	.179
2/2/69	16	2.2	.138	4/30/71	28	8.9	.318	4/1/74	23	5.5	.239
2/27/69	26	3.5	.135	2/3/72	50	10.9	.218	4/30/74	4	1.2	.300
3/27/69	20	3.5	.175	2/25/72	42	10.8	.257				

\*Snow depth on this date measured from aerial marker and water equivalent, snow density values estimated.

Table IV. Ice thickness observations at Mankomen Lake, Snowshoe Lake, Talkeetna and Trapper's Creek, Alaska.

MANKOMEN LAKE Measurements made on Mankomen Lake											
1965-1966				1966-1967				1967-1968			
Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)
Oct. 15	First ice	Oct. 8	First ice	Oct. 15	First ice	Oct. 15	First ice	Oct. 15	First ice	Oct. 15	First ice
Oct. 16	2.0	Oct. 22	2.0	Oct. 22	2.0	Oct. 22	2.0	Oct. 22	1.0	Oct. 22	1.0
Oct. 30	5.0	Oct. 29	9.0	Oct. 23	Freeze over	Oct. 23	Freeze over	Oct. 23	Freeze over	Oct. 23	Freeze over
Nov. 27	20.0	Nov. 26	20.0	Oct. 29	7.0	Oct. 29	7.0	Oct. 29	7.0	Oct. 29	7.0
Dec. 25	31.0	Dec. 31	33.0	Nov. 27	10.0	Nov. 27	10.0	Nov. 27	10.0	Nov. 27	10.0
Jan. 29	39.0	Jan. 28	38.5	Dec. 31	28.0	Dec. 31	28.0	Dec. 31	28.0	Dec. 31	28.0
Feb. 26	41.0	Feb. 25	42.5	Jan. 28	33.0	Jan. 28	33.0	Jan. 28	33.0	Jan. 28	33.0
Mar. 19	51.0	Mar. 18	44.0	Feb. 25	37.0	Feb. 25	37.0	Feb. 25	37.0	Feb. 25	37.0
Apr. 9	48.0	Mar. 25	43.0	Mar. 31	41.0	Mar. 31	41.0	Mar. 31	41.0	Mar. 31	41.0
Apr. 30	32.0	Apr. 20	42.0	May 5	37.0	May 5	37.0	May 5	37.0	May 5	37.0
May 28	18.0	May 27	30.0	May 26	20.0	May 26	20.0	May 26	20.0	May 26	20.0
June 18	12.0	June 10	18.0	June 2	25.0	June 2	25.0	June 2	25.0	June 2	25.0
June 23	Ice free	June 23	Ice free	June 10	Ice free	June 10	Ice free	June 10	Ice free	June 10	Ice free
1968-1969				1969-1970				1970-1971			
Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)
Oct. 10	1.0	Oct. 24	Freeze over	Oct. 17	1.5	Oct. 17	1.5	Oct. 17	1.5	Oct. 17	1.5
Oct. 26	5.5	Oct. 25	1.5	Oct. 31	14.5	Oct. 31	14.5	Oct. 31	14.5	Oct. 31	14.5
Nov. 30	11.0	Nov. 27	17.0	Nov. 28	22.0	Nov. 28	22.0	Nov. 28	22.0	Nov. 28	22.0
Dec. 28	34.5	Dec. 27	25.0	Dec. 26	33.0	Dec. 26	33.0	Dec. 26	33.0	Dec. 26	33.0
Jan. 25	50.0	Jan. 31	32.0	Jan. 30	44.0	Jan. 30	44.0	Jan. 30	44.0	Jan. 30	44.0
Feb. 22	46.0	Feb. 20	33.0	Feb. 27	53.0	Feb. 27	53.0	Feb. 27	53.0	Feb. 27	53.0
Mar. 20	57.0	Mar. 26	37.0	Mar. 20	56.0	Mar. 20	56.0	Mar. 20	56.0	Mar. 20	56.0
Apr. 10	58.0	Apr. 25	36.0	Apr. 17	64.0	Apr. 17	64.0	Apr. 17	64.0	Apr. 17	64.0
May 17	51.0	May 23	28.0	May 12	48.0	May 12	48.0	May 12	48.0	May 12	48.0
May 31	38.0	May 30	26.0	June 12	26.0	June 12	26.0	June 12	26.0	June 12	26.0
June 14	12.0	June 6	12.0	June 19	21.0	June 19	21.0	June 19	21.0	June 19	21.0
June 21	Ice out	June 17	Ice out	June 30	Ice out	June 30	Ice out	June 30	Ice out	June 30	Ice out
1971-1972				1972-1973				1973-1974			
Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)
Oct. 4	First ice	Oct. 11&17	First ice	Oct. 4	First ice	Oct. 4	First ice	Oct. 4	First ice	Oct. 4	First ice
Oct. 18	Freeze over	Oct. 26	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over
Oct. 21	3.0	Nov. 9	7.5	Oct. 25	7.5	Oct. 25	7.5	Oct. 25	7.5	Oct. 25	7.5
Nov. 5	10.0	Nov. 26	17.5	Nov. 25	12.0	Nov. 25	12.0	Nov. 25	12.0	Nov. 25	12.0
Nov. 26	15.5	Dec. 2	24.0	Dec. 27	14.5	Dec. 27	14.5	Dec. 27	14.5	Dec. 27	14.5
Dec. 31	31.0	Jan. 20	29.0	Jan. 20	22.0	Jan. 20	22.0	Jan. 20	22.0	Jan. 20	22.0
Jan. 28	40.0	Feb. 23	31.0	Feb. 27	23.5	Feb. 27	23.5	Feb. 27	23.5	Feb. 27	23.5
Feb. 21	42.5	Mar. 20	36.0	Mar. 27	26.0	Mar. 27	26.0	Mar. 27	26.0	Mar. 27	26.0
Mar. 18	47.0	Apr. 26	37.5	Apr. 17	26.5	Apr. 17	26.5	Apr. 17	26.5	Apr. 17	26.5
Apr. 28	46.0	May 10	34.5	Apr. 30	25.5	Apr. 30	25.5	Apr. 30	25.5	Apr. 30	25.5
May 18	47.0	May 17	25.5	May 7	22.0	May 7	22.0	May 7	22.0	May 7	22.0
May 20	36.0	May 20	open areas	May 20	Ice free	May 20	Ice free	May 20	Ice free	May 20	Ice free
1974-1975				1975-1976				1976-1977			
Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)
Oct. 12	Shore ice	Oct. 1	First ice	Oct. 1	First ice	Oct. 1	First ice	Oct. 1	First ice	Oct. 1	First ice
Oct. 21	Freeze over	Oct. 20	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over	Oct. 17	Freeze over
Oct. 23	6.5	Oct. 20	4.0	Nov. 3	8.0	Nov. 3	8.0	Nov. 3	8.0	Nov. 3	8.0
Oct. 29	9.5	Oct. 25	14.5	Nov. 24	10.5	Nov. 24	10.5	Nov. 24	10.5	Nov. 24	10.5
Nov. 26	12.0	Dec. 20	20.5	Dec. 20	17.5	Dec. 20	17.5	Dec. 20	17.5	Dec. 20	17.5
Dec. 31	17.5	Jan. 24	23.5	Jan. 26	23.5	Jan. 26	23.5	Jan. 26	23.5	Jan. 26	23.5
Jan. 28	22.0	Feb. 25	25.0	Feb. 23	26.0	Feb. 23	26.0	Feb. 23	26.0	Feb. 23	26.0
Feb. 25	24.0	Mar. 30	24.0	Apr. 13	30.0	Apr. 13	30.0	Apr. 13	30.0	Apr. 13	30.0
Mar. 26	31.5	Apr. 20	22.0	Apr. 27	29.0	Apr. 27	29.0	Apr. 27	29.0	Apr. 27	29.0
Apr. 30	32.0	May 18	26.0	May 10	22.0	May 10	22.0	May 10	22.0	May 10	22.0
May 14	29.0	May 26	Ice breaking up	May 15	Shore-ice free	May 15	Shore-ice free	May 15	Shore-ice free	May 15	Shore-ice free
June 3	Ice free			May 20	Ice out	May 20	Ice out	May 20	Ice out	May 20	Ice out
1977-1978				1978-1979				1979-1980			
Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)	Date	Thickness (inches)
Oct. 10	First ice	Sept. 23	First ice	Oct. 5-12	Ice forming	Oct. 5-12	Ice forming	Oct. 5-12	Ice forming	Oct. 5-12	Ice forming
Oct. 20	0.5	Oct. 17	Freeze over	Oct. 21	Freeze over	Oct. 21	Freeze over	Oct. 21	Freeze over	Oct. 21	Freeze over
Oct. 26	3.0	Oct. 17	2.0	Oct. 23	5.0	Oct. 23	5.0	Oct. 23	5.0	Oct. 23	5.0
Oct. 27	Freeze over complete	Oct. 21	9.0	Oct. 30	8.5	Oct. 30	8.5	Oct. 30	8.5	Oct. 30	8.5
Nov. 2	6.5	Nov. 29	13.5	Nov. 27	13.0	Nov. 27	13.0	Nov. 27	13.0	Nov. 27	13.0
Nov. 30	15.0	Dec. 26	10.0	Dec. 25	17.0	Dec. 25	17.0	Dec. 25	17.0	Dec. 25	17.0
Dec. 28	10.5	Jan. 31	24.0	Jan. 27	24.0	Jan. 27	24.0	Jan. 27	24.0	Jan. 27	24.0
Jan. 25	22.5	Feb. 27	26.5	Feb. 26	26.5	Feb. 26	26.5	Feb. 26	26.5	Feb. 26	26.5
Feb. 22	24.0	Mar. 27	28.0	Mar. 25	27.0	Mar. 25	27.0	Mar. 25	27.0	Mar. 25	27.0
Mar. 20	25.0	Apr. 24	27.5	Apr. 27	29.5	Apr. 27	29.5	Apr. 27	29.5	Apr. 27	29.5
Apr. 10	26.5	May 22	23.0	May 20	27.0	May 20	27.0	May 20	27.0	May 20	27.0
May 2	24.0	May 24	Shore-ice free	May 27	Shore-ice free	May 27	Shore-ice free	May 27	Shore-ice free	May 27	Shore-ice free
May 16	11.0	May 31	Lake 1/3 Ice free	June 2	Ice out	June 2	Ice out	June 2	Ice out	June 2	Ice out
May 20	Large openings										
May 21	Ice pans only										



Table IV. (cont'd.)

**TALKEETNA**  
Measurements made on Susitna River

Date	1961-1962 Thickness (inches)
Nov. 11	No ice
Nov. 18	4.0
Nov. 25	6.0
Dec. 30	36.0
Jan. 27	38.0
Feb. 24	42.0
Mar. 10	61.0
Mar. 31	51.0
Apr. 7	49.0
Apr. 20	11.0
May 5	2.0
May 25	River open

Date	1962-1963 Thickness (inches)
Oct. 10	First ice
Nov. 10	Freeze over
Nov. 20	4.0
Jan. 11	32.0
Feb. 1	32.5
Feb. 20	24.0
Mar. 20	43.5
Apr. 26	40.5
May 3	44.0
May 15	Ice free

Date	1963-1964 Thickness (inches)
Nov. 8	Some ice
Nov. 22	4.5
Nov. 2	7.0
Dec. 20	32.0
Jan. 25	26.0
Feb. 10	23.0
Mar. 14	30.0
Mar. 21	34.0
Apr. 25	30.0

Date	1964-1965 Thickness (inches)
Oct. 20	Shore ice
Nov. 26	8.0
Dec. 26	23.0
Jan. 30	30.0
Feb. 6	38.0
Feb. 27	32.0
Mar. 27	26.0
Apr. 3	22.0
Apr. 10	18.0
Apr. 30	Channel open

Date	1965-1966 Thickness (inches)
Oct. 11	First ice
Oct. 30	2 1/2 freeze over
Nov. 20	7.0
Nov. 27	11.0
Dec. 27	10.0
Jan. 10	20.0
Jan. 20	20.0
Feb. 10	10.0
Feb. 20	20.0
Apr. 20	10.0
Apr. 26	10.0
Apr. 27	Ice out

Date	1966-1967 Thickness (inches)
Oct. 20	First ice
Oct. 20	Freeze over
Dec. 3-24	Channel open
Dec. 31	4.5
Jan. 20	10.0
Feb. 20	22.0
Mar. 26	26.0
Apr. 22	26.0
Apr. 27	21.5
Apr. 30	Ice breaking up

Measurements made on Susitna River  
ice jammed

Date	1967-1968 Thickness (inches)
Jan. 27	32.0
Feb. 3	20.0
Feb. 24	30.0
Mar. 10	30.0
Apr. 20	20.0
May 4	Open areas
May 11	Ice jams broke

Date	1968-1969 Thickness (inches)
Oct. 10	Ice jammed
Oct. 10	4.0
Oct. 20	14.0
Oct. 30	30.0
Nov. 20	33.5
Mar. 20	24.0
Apr. 10	10.0
Apr. 20	Ice breaking up

Date	1969-1970 Thickness (inches)
Dec. 20	2.0
Dec. 27	4.0
Jan. 10	12.0
Jan. 31	20.0
Mar. 7	28.0
Mar. 21	32.0
Mar. 20	27.0
Apr. 11	25.0
Apr. 10	Ice breaking up
Apr. 20	Channel opening up

Date	1970-1971 Thickness (inches)
Nov. 7-21	Ice jam
Nov. 26	2.0
Dec. 26	10.0
Jan. 20	20.0
Feb. 27	20.0
Mar. 20	20.0
Mar. 27	32.0

Date	1971-1972 Thickness (inches)
Oct. 10	First ice
Nov. 10	Freeze over
Nov. 20	1.0
Dec. 10	2.0
Jan. 10	10.0
Jan. 20	21.0
Feb. 5	28.0
Feb. 20	20.0

Date	Thickness (inches)
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Table V. Tabulation of observed snow cover depths, weighted densities and water equivalents.

Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Equivalent (inches)	Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Water Equivalent (inches)	Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Water Equivalent (inches)
SUMMIT, ALASKA											
Winter 1973-1974											
10/26/73	8.5	.251	2.1	1/5/74	10.25	.286	2.9	3/16/74	10.0	.274	2.7
11/3/73	8.0	.244	2.0	1/12/74	10.75	.304	3.3	3/23/74	9.0	.292	2.6
11/10/73	7.0	.245	1.7	1/19/74	11.5	.308	3.5	3/30/74	7.5	--	--
11/17/73	8.0	.264	2.1	1/26/74	9.25	.300	3.2	4/16/74	9.0	.276	2.5
11/25/73	8.25	.292	2.4	2/9/74	14.0	.242	3.4	4/13/74	8.0	.298	2.4
12/1/73	8.25	.275	2.3	2/16/74	14.0	.275	3.8	4/20/74	5.0	.288	1.4
12/8/73	8.0	.260	2.1	2/24/74	10.5	.264	2.8	4/27/74	3.0	.324	1.0
12/15/73	8.75	.280	2.4	3/2/74	11.0	.313	3.4	5/4/74	7.0	.355	2.5
12/22/73	9.75	.257	2.5	3/9/74	14.0	.288	4.0	5/11/74	2.0	--	--
12/29/73	10.0	.276	2.8								
SHOWSHOE LAKE, ALASKA											
Winter 1963-1964											
12/1/63	5.0	.110	0.6	2/4/64	11.5	.160	1.8	4/6/64	13.5	.231	3.1
12/15/63	4.5	.220	1.0	2/9/64	10.0	.186	1.9	4/19/64	11.0	.237	2.6
12/29/63	4.5	.210	1.0	2/23/64	11.0	.229	2.5	5/4/64	8.0	.366	2.9
1/12/64	6.0	.180	1.1	3/8/64	12.0	.204	2.4	5/16/64	3.0	.170	0.5
1/26/64	7.0	.170	1.2	3/23/64	15.0	.199	3.0				
Winter 1964-1965											
10/27/64	5.5	.120	0.7	1/2/65	15.5	.184	2.0	3/7/65	22.0	.208	4.6
11/9/64	6.0	.210	1.3	1/9/65	18.0	.169	3.0	3/13/65	20.0	.215	4.3
11/16/64	8.0	.183	1.5	1/16/65	19.5	.188	3.7	3/20/65	19.5	.231	4.5
11/23/64	6.5	.200	1.3	1/23/65	21.0	.168	3.5	3/28/65	13.0	.371	4.8
11/28/64	6.5	.188	1.2	1/30/65	20.0	.174	3.5	4/3/65	11.0	.355	3.9
12/6/64	12.5	.137	1.7	2/6/65	20.0	.193	3.0	4/10/65	10.0	.320	3.2
12/12/64	16.0	.183	2.9	2/13/65	21.0	.196	4.1	4/18/65	7.0	.416	2.9
12/19/64	15.5	.168	2.5	2/20/65	22.0	.181	4.0	4/24/65	7.0	.304	2.1
Winter 1965-1966											
10/16/65	4.5	.152	0.7	12/26/65	16.0	.194	3.1	3/5/66	16.5	.191	3.2
10/25/65	5.0	.180	0.7	1/1/66	17.5	.228	3.8	3/13/66	18.0	.186	3.4
10/30/65	10.5	.146	1.5	1/8/66	15.0	.197	3.0	3/19/66	20.0	.211	4.2
11/7/65	10.5	.167	1.8	1/15/66	16.0	.234	3.7	3/26/66	18.0	.277	5.0
11/13/65	10.5	.186	2.0	1/22/66	16.0	.205	3.3	4/2/66	16.0	.275	4.4
11/20/65	11.5	.174	2.0	1/29/66	15.0	.241	3.6	4/10/66	14.0	.278	3.9
11/27/65	13.5	.207	2.8	2/6/66	15.0	.210	3.2	4/16/66	13.0	.302	3.9
12/4/65	13.0	.203	2.6	2/12/66	14.5	.217	3.2	4/23/66	10.0	.299	3.0
12/11/65	12.0	.210	2.6	2/19/66	17.0	.213	3.6	4/30/66	6.0	.386	2.3
12/18/65	14.0	.205	2.9	2/26/66	17.0	.217	3.7	5/7/66	0.0	--	--
Winter 1966-1967											
10/22/66	3.0	.170	0.5	12/31/66	14.5	.196	2.8	3/11/67	26.0	.188	4.9
10/29/66	3.0	.128	0.4	1/7/67	15.5	.195	2.9	3/18/67	23.0	.222	5.1
11/5/66	8.5	.143	1.2	1/14/67	17.0	.212	3.6	3/26/67	21.5	.219	4.7
11/12/66	9.0	.170	1.5	1/21/67	17.5	.234	3.9	4/2/67	22.0	.222	4.9
11/19/66	9.5	.201	1.7	1/28/67	16.5	.221	3.5	4/9/67	20.0	.267	5.3
11/26/66	11.5	.175	2.0	2/4/67	16.5	.221	3.5	4/16/67	17.5	.223	4.3
12/4/66	11.0	.200	2.2	2/11/67	16.5	.227	3.5	4/23/67	18.0	.172	3.1
12/10/66	10.5	.180	2.0	2/18/67	16.5	.227	3.5	4/30/67	14.0	.338	5.4
12/17/66	10.0	.212	2.1	2/25/67	16.5	.192	3.0	5/7/67	8.0	.385	3.1
12/25/66	13.5	.200	2.7	3/5/67	19.0	.185	5.2	5/14/67	0.0	.124	4.0
Winter 1967-1968											
11/25/67	5.0	.146	0.7	1/20/68	17.0	.200	2.5	3/23/68	26.0	.234	6.1
12/3/67	6.5	.130	0.8	2/6/68	17.0	.197	2.3	3/30/68	32.0	.194	6.2
12/9/67	6.0	.174	1.0	2/13/68	17.0	.172	2.4	4/6/68	27.0	.222	6.0
12/15/67	17.0	.158	2.7	2/20/68	22.0	.177	4.3	4/13/68	26.0	.231	6.0
12/24/67	15.0	.172	2.6	2/27/68	22.0	.206	4.6	4/21/68	25.0	.256	6.4
12/30/67	14.0	.197	2.3	3/6/68	26.0	.227	5.9	4/28/68	19.0	.226	4.3
1/6/68	16.5	.193	3.2	3/13/68	26.0	.224	5.9	5/5/68	14.0	.325	4.6
1/13/68	16.0	.205	3.2	3/20/68	26.0	.220	5.3	5/12/68	6.0	.422	2.5
1/20/68	17.0	.202	3.5								
Winter 1968-1969											
10/3/68	6.0	.112	0.7	12/3/68	13.0	.202	2.6	1/26/69	14.5	.221	3.2
10/6/68	4.0	.224	0.9	12/10/68	13.0	.196	2.5	2/2/69	17.5	.213	3.3
10/14/68	3.5	.224	0.8	12/15/68	13.5	.200	2.9	2/9/69	16.5	.229	3.8
10/21/68	4.5	.180	0.9	12/22/68	14.0	.200	2.9	2/16/69	16.5	.204	3.4
10/27/68	4.5	.170	0.9	12/29/68	13.5	.212	2.9	2/23/69	18.5	.220	4.1
11/3/68	6.5	.160	1.0	1/5/69	14.0	.206	3.0	4/13/69	12.0	.300	3.6
11/10/68	3.0	.153	1.3	1/12/69	14.5	.219	3.2	4/20/69	10.0	.330	3.3
11/17/68	9.0	.172	1.7	1/19/69	14.0	.226	3.2	4/27/69	5.0	.317	1.6
11/24/68	9.0	.173	1.7								
Winter 1969-1970											
11/2/69	2.5	.150	0.3	1/4/70	14.0	.200	2.9	3/8/70	17.0	.19	3.3
11/9/69	5.5	.146	0.9	1/11/70	13.0	.170	2.3	3/15/70	18.5	.221	4.2
11/16/69	6.0	.171	1.1	1/18/70	12.5	.170	2.4	3/22/70	17.5	.257	4.5
11/23/69	6.0	.170	1.1	1/25/70	15.0	.180	2.7	3/29/70	16.0	.257	4.1
11/30/69	7.5	.178	1.3	2/1/70	15.0	.180	2.7	4/5/70	15.0	.255	3.8
12/7/69	7.5	.190	1.4	2/8/70	17.0	.213	3.6	4/12/70	15.0	.264	4.0
12/14/69	8.5	.188	1.6	2/15/70	17.0	.192	3.1	4/19/70	10.0	.333	3.3
12/21/69	11.5	.172	2.0	2/22/70	17.0	.201	3.2	4/26/70	6.0	.344	2.1
12/28/69	11.5	.172	2.2	2/29/70	17.0	.203	3.2				
Winter 1970-1971											
10/17/70	4.5	.112	0.5	12/26/70	17.5	.177	3.2	3/6/71	20.5	.201	4.1
10/24/70	6.0	.156	0.9	1/2/71	17.0	.206	3.5	3/13/71	20.0	.208	4.2
10/31/70	8.0	.201	1.6	1/9/71	18.0	.190	3.6	3/20/71	20.0	.227	4.5
11/7/70	9.5	.198	1.9	1/16/71	17.0	.192	3.3	3/27/71	20.0	.232	4.6
11/14/70	9.0	.205	1.8	1/23/71	17.0	.197	3.3	4/3/71	20.0	.249	5.0
11/21/70	10.5	.204	2.1	1/31/71	18.0	.195	3.5	4/10/71	19.5	.214	4.2

Table V. (cont'd.)

Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Water Equivalent (inches)	Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Water Equivalent (inches)	Date	Depth (inches)	Density (g/cm <sup>3</sup> )	Water Equivalent (inches)
STATION LAG, ALASKA											
Inter 1000-1001 (continued)											
11/20/70	12.5	.224	0.1	2/10/71	18.0	.229	3.8	4/17/71	10.0	.224	5.2
12/5/70	12.5	.224	1.0	2/13/71	18.5	.229	3.8	4/24/71	18.0	.224	4.8
12/12/70	12.5	.224	0.5	2/20/71	18.5	.224	1.5	5/1/71	10.0	.230	3.4
12/19/70	12.5	.220	0.0	2/27/71	18.5	.195	3.7	5/8/71	5.5	.392	2.0
Inter 1001-1002											
10/23/71	3.5	.207	0.0	3/10/72	18.0	.200	1.0	3/11/72	20.0	.207	5.4
10/23/71	12.5	.122	1.0	3/10/72	18.0	.100	0.0	3/19/72	20.0	.105	5.0
11/2/71	12.5	.184	1.0	3/10/72	20.0	.100	0.0	3/26/72	20.0	.212	0.1
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	4/2/72	20.0	.200	0.0
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	4/2/72	20.0	.200	0.0
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	4/15/72	20.0	.220	0.4
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	4/22/72	20.0	.221	0.2
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	4/28/72	20.0	.240	0.0
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	5/1/72	11.5	.400	5.0
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0	5/19/72	5.5	.410	2.0
11/2/71	18.0	.160	0.0	3/10/72	20.0	.100	0.0				
Inter 1002-1003											
9/29/72	3.0	.099	0.0	3/10/72	18.0	.200	0.0	3/24/73	17.0	.214	3.7
10/1/72	4.5	.086	0.4	3/10/72	18.0	.200	0.0	3/3/73	17.5	.220	3.0
10/7/72	8.0	.150	1.2	3/10/72	18.0	.200	0.0	3/10/73	17.0	.242	4.1
10/14/72	6.5	.232	1.5	3/10/72	18.0	.200	0.0	3/17/73	17.0	.211	3.0
10/21/72	2.0	.302	0.6	3/10/72	18.0	.200	0.0	3/24/73	17.5	.235	4.1
10/28/72	3.0	.300	0.0	3/10/72	18.0	.200	0.0	3/21/73	17.0	.205	4.4
11/4/72	5.0	.226	1.1	3/10/72	18.0	.200	0.0	4/1/73	17.0	.240	4.0
11/12/72	6.5	.276	1.8	3/10/72	18.0	.200	0.0	4/14/73	17.5	.247	3.7
11/18/72	7.0	.191	1.3	3/10/72	18.0	.200	0.0	4/21/73	10.0	.347	0.5
11/25/72	3.0	.213	1.7	3/10/72	18.0	.200	0.0	4/28/73	10.5	.320	3.4
12/2/72	10.0	.224	2.0	3/10/72	18.0	.212	0.0				
Inter 1003-1004											
10/12/72	3.0	.117	0.4	3/10/72	18.0	.200	0.0	3/2/74	10.5	.170	3.5
10/20/72	4.0	.135	0.0	3/10/72	18.0	.200	0.0	3/2/74	20.5	.100	3.0
10/27/72	4.0	.147	0.0	3/10/72	18.0	.200	0.0	3/16/74	20.0	.100	3.4
11/12/72	4.0	.144	0.0	3/10/72	18.0	.200	0.0	3/22/74	19.5	.237	4.4
11/19/72	3.0	.164	0.0	3/10/72	18.0	.200	0.0	3/30/74	10.0	.212	3.0
11/26/72	3.0	.127	1.1	3/10/72	18.0	.200	0.0	4/7/74	17.5	.213	3.7
12/1/73	3.0	.172	1.7	3/10/72	18.0	.200	0.0	4/13/74	17.0	.215	3.7
12/8/73	3.0	.174	1.0	3/10/72	18.0	.200	0.0	4/20/74	15.0	.272	4.1
12/15/73	3.0	.170	1.4	3/10/72	18.0	.200	0.0	4/27/74	6.5	.347	2.2
12/22/73	3.0	.172	1.7								

Table VI. Observations on the depth of thawed soil at Snowshoe Lake, Alaska.

Depth of thaw (in.)			Depth of thaw (in.)			Depth of thaw (in.)			Depth of thaw (in.)		
Tundra site			Tundra site			Tundra site			Tundra site		
Date	Loam and gravel site	Date	Loam and gravel site	Date	Loam and gravel site	Date	Loam and gravel site	Date	Loam and gravel site	Date	Loam and gravel site
13 May	1.25	10 June	7.00	1967	17.00	8 July	20.50	2 July	11.00	10 June	8.00
16 May	2.50	13 June	8.00	1967	20.00	11 July	21.50	6 July	13.75	14 June	8.75
20 May	2.75	17 June	10.75	1967	27.75	15 July	23.00	9 July	17.50	17 June	9.25
23 May	3.00	20 June	11.75	1967	30.00	18 July	24.00	13 July	21.75	21 June	12.00
27 May	3.25	24 June	13.75	1967	30.00+	22 July	26.25	16 July	25.75	24 June	14.50
30 May	4.00	27 June	15.50	1967	30.00+	25 July	28.25	20 July	30.00+		
3 June	4.75	1 July	18.25	1967	over 30.00		over 30.00		over 30.00		
6 June	5.25	5 July	19.50	1967	over 30.00		over 30.00		over 30.00		
21 May	5.25	11 June	7.00	1968	over 30.00	2 July	11.00	10 June	8.00	over 30.00	over 30.00
25 May	5.75	15 June	7.50	1968	over 30.00	6 July	13.75	14 June	8.75	over 30.00	over 30.00
28 May	6.00	18 June	7.75	1968	over 30.00	9 July	17.50	17 June	9.25	over 30.00	over 30.00
1 June	6.25	22 June	8.25	1968	over 30.00	13 July	21.75	20 July	30.00+	over 30.00	over 30.00
4 June	6.50	25 June	8.75	1968	over 30.00	16 July	25.75			over 30.00	over 30.00
8 June	6.75	29 June	9.75	1968	over 30.00	20 July	30.00+			over 30.00	over 30.00
29 April	2.00	20 May	4.75	1969	24.25	10 June	8.00			over 30.00	over 30.00
3 May	2.50	24 May	5.50	1969	30.00	14 June	8.75			over 30.00	over 30.00
6 May	2.75	27 May	6.25	1969	over 30.00	17 June	9.25			over 30.00	over 30.00
10 May	3.25	31 May	7.00	1969	over 30.00	21 June	12.00			over 30.00	over 30.00
13 May	3.75	3 June	7.50	1969	over 30.00	24 June	14.50			over 30.00	over 30.00
17 May	4.25	7 June	7.50	1969	over 30.00					over 30.00	over 30.00
2 May	2.00	23 May	5.00	1970	27.50	13 June	5.75			over 30.00	over 30.00
5 May	2.75	26 May	5.25	1970	30.00	16 June	7.00			over 30.00	over 30.00
9 May	3.25	30 May	5.50	1970	over 30.00	20 June	7.50			over 30.00	over 30.00
12 May	4.25	2 June	6.25	1970	over 30.00	23 June	8.00			over 30.00	over 30.00
16 May	4.50	6 June	6.50	1970	over 30.00	27 June	9.00			over 30.00	over 30.00
19 May	4.75	9 June	6.50	1970	over 30.00	30 June	9.75			over 30.00	over 30.00
8 May	surface frozen	1 June	5.00	1971	26.50	26 June	9.50			over 30.00	over 30.00
11 May	surface frozen	5 June	5.50	1971	28.00	27 June	11.50			over 30.00	over 30.00
15 May	1.25	8 June	5.75	1971	over 30.00	28 June	13.50			over 30.00	over 30.00
18 May	2.50	12 June	6.25	1971	over 30.00	3 July	14.75			over 30.00	over 30.00
22 May	3.25	15 June	6.75	1971	over 30.00	6 July	16.00			over 30.00	over 30.00
25 May	4.00	19 June	7.75	1971	over 30.00	10 July	18.75			over 30.00	over 30.00
29 May	4.50	22 June	8.50	1971	over 30.00	13 July	21.75			over 30.00	over 30.00
1 May	surface frozen	7 June	5.50	1972	23.25	17 July	21.75			over 30.00	over 30.00
12 May	surface frozen	10 June	6.00	1972	27.00	8 July	8.75			over 30.00	over 30.00
16 May	surface frozen	13 June	6.50	1972	over 30.00	9 July	9.50			over 30.00	over 30.00
20 May	2.00	17 June	7.00	1972	over 30.00	11 July	11.50			over 30.00	over 30.00
23 May	3.75	20 June	8.00	1972	over 30.00	15 July	15.50			over 30.00	over 30.00
27 May	4.50	24 June	8.25	1972	over 30.00	18 July	16.00			over 30.00	over 30.00
30 May	5.00	27 June	8.50	1972	over 30.00	22 July	24.00			over 30.00	over 30.00
3 June	surface frozen	1 July	9.50	1972	over 30.00	25 July	27.00			over 30.00	over 30.00
1 May	surface frozen	22 May	11.75	1973	19.00	12 June	6.75			over 30.00	over 30.00
5 May	1.00	26 May	13.25	1973	19.75	16 June	8.00			over 30.00	over 30.00
8 May	1.50	29 May	14.50	1973	24.50	19 June	8.50			over 30.00	over 30.00
12 May	2.50	2 June	15.50	1973	27.00	23 June	9.50			over 30.00	over 30.00
15 May	3.00	5 June	16.00	1973	28.00	26 June	10.25			over 30.00	over 30.00
19 May	3.50	9 June	17.25	1973	over 30.00	30 June	12.50			over 30.00	over 30.00